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# ENVIRONMENTAL ASSESSMENT BOARD



## ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

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VOLUME: 64

DATE: Wednesday, September 25, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD  
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,  
R.S.O. 1980, c. 140, as amended, and Regulations  
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro  
consisting of a program in respect of activities  
associated with meeting future electricity  
requirements in Ontario.

Held on the 5th Floor, 2200  
Yonge Street, Toronto, Ontario,  
on Wednesday, the 25th day of September,  
1991, commencing at 10:00 a.m.

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VOLUME 64  
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MS. G. PATTERSON	Member

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1       ---Upon commencing at 10:03 a.m.

2               THE REGISTRAR: Please come to order.

3       This hearing is now in session. Please be seated.

4               THE CHAIRMAN: Mr. Mark?

5               MR. MARK: Thank you, Mr. Chairman. Just  
6       before I resume my questioning, if I could address one  
7       matter. We were discussing, you will recall, yesterday  
8       with this panel the megawatt results reports and the  
9       audit of that system.

10              There were two documents that I thought I  
11      had asked to be produced by way of undertaking. In the  
12      record, only one of them appears as an undertaking  
13      I have spoken to Mr. Campbell and he has no problem  
14      with this.

15              Undertaking 267.19, as it now reads, is  
16      an undertaking for Ontario Hydro to provide the 1990  
17      net impact analysis for demand management results.

18              The other document that I thought I had  
19      asked for was the Ernst & Young audit report on the  
20      megawatt tracking system. I understand Hydro is  
21      content to produce that as well as part of that same  
22      undertaking.

23              MR. B. CAMPBELL: That is correct, Mr.  
24      Chairman. The Ernst & Young report, I believe, is  
25      already available and the net impact report is under

1 preparation and we are content to produce it in that  
2 same undertaking number when it is completed.

3 THE CHAIRMAN: Have we got the  
4 undertaking number so it can go on the record?

5 MR. MARK: Yes. I think it was 267.19.

6 THE CHAIRMAN: Thank you.

7 MR. B. CAMPBELL: And it would include  
8 both documents.

9 THE CHAIRMAN: Right. Thank you.

10 MS. FRASER: Just so it is clear on that,  
11 the Ernst & Young study is an interim step towards  
12 getting to the net impact. It is not a separate  
13 process from it.

14 MR. MARK: No. I appreciate that.

15 MS. FRASER: Okay.

16 MR. MARK: I think we now understand how  
17 it works.

18 MS. FRASER: We don't have to discount  
19 our net numbers by the Ernst & Young studies.

20 THE CHAIRMAN: Your numbers won't be  
21 greater than the Ernst & Young study?

22 MS. FRASER: Well, it depends how the  
23 line losses and things like that factor in.

24

25

1                    PAUL JONATHAN BURKE,  
2                    AMIR SHALABY,  
3                    MARION ELIZABETH FRASER,  
4                    LYN DOUGLAS WILSON,  
5                    WILLIAM OSBORNE HARPER,  
6                    IAN DUNCAN MacLELLAN; resumed.

7                    CROSS-EXAMINATION BY MR. MARK (cont'd):

8                    Q. Just lastly, panel, before we leave  
9                    the issue of monitoring and assessing the results of  
10                   the program, so we can best track how we are doing on  
11                   this, would it be possible for you to advise us what  
12                   your peak primary load was for both July and August of  
13                   1991 and your primary energy for those same months? We  
14                   don't need it right now. We can do it by way of  
15                   undertaking.

16                   MR. BURKE: A. I can give you the  
17                   numbers after the break.

18                   Q. Sure, we can do it that way.

19                   THE CHAIRMAN: In 1991; is that right?

20                   MR. MARK: Yes.

21                   Q. Panel, I want to turn please to the  
22                   subject of fuel switching. Am I correct, and, Mr.  
23                   Wilson, perhaps you can deal with this; that certainly  
24                   as of the time of this year's rate hearing in May and  
25                   June of this year, Ontario Hydro's position was that it  
did not have the data necessary to permit you to do a  
total customer cost analysis of fuel switching?

1 MR. WILSON: A. Our position was that we  
2 didn't have the information we were confident in. We  
3 had information based on gas prices.

4 Q. Yes.

5 A. We had yet to satisfy ourselves that  
6 that was a reasonable reflection of gas cost.

7 Q. And for that reason, you didn't take  
8 the analysis any further?

9 A. That's correct.

10 Q. As I understand it, and correct me if  
11 I am wrong, you don't today have any better information  
12 on the marginal cost of the gas supply; you have just  
13 decided to use the gas price as a proxy?

14 A. I believe that is where we are today.

15 Q. And you may have said this elsewhere,  
16 but I just want to confirm, can we expect that Hydro is  
17 going to do this more detailed marginal cost analysis  
18 of the price of gas supply? Is that something that is  
19 in the works?

20 A. We are working with the gas utilities  
21 to get a better understanding of the costs of supply,  
22 both short and long term so we can make that step.

23 Q. Do you have any targeted date for  
24 completion of that work so you can report on the  
25 marginal cost of gas?



1                   A. I am sorry, I don't. My  
2     understanding is that in many respects the gas  
3     distribution utilities don't have an accounting and  
4     cost analysis approach that allows them to create these  
5     estimates in the same way that we would approach it.  
6     And there are some definitional and methodological  
7     issues that we are just starting to talk about.

8                   Q. It sounds like it is going to be a  
9     rather long and perhaps difficult process to get a  
10    marginal cost analysis of gas supply which is  
11    comparable to the one you use on your electricity  
12    supply side?

13                  A. I believe that is true, and that is  
14    why, in the short term, we are prepared to rely on  
15    price.

16                  Q. Would it be fair to say, Mr. Wilson,  
17    that the average price of gas is going to be lower than  
18    the marginal cost of supply?

19                  A. I don't know. Again, marginal cost  
20    depends on the time of use, seasonality and a host of  
21    factors. You have to be quite specific before you can  
22    talk about the cost.

23                  Q. In your bundle of overhead exhibits,  
24    exhibit --

25                  THE CHAIRMAN: 260.

1 MR. MARK: Thank you, Mr. Chairman --

2 260, could you open please to page 8?

3 Q. Mr. Burke, are you best equipped to  
4 deal with this analysis or is it Mr. Wilson?

5 MR. BURKE: A. Well, actually, I think  
6 this overhead was used by Mr. Shalaby, so ...

7 Q. All right.

8 A. We will have to see what the question  
9 is.

10 Q. All right. This does represent your  
11 total customer cost test analysis as far as you have  
12 taken it for fuel switching for this particular  
13 example? It is the total customer cost analysis?

14 MR. SHALABY: A. It is.

15 Q. All right. And keeping that open,  
16 Mr. Shalaby, could you also open Exhibit 257.

17 Mr. Chairman, I am sorry you will have to  
18 give me -- no, I have it, sorry.

19 Open to page 11. Mr. Shalaby, is that  
20 where we get, as the reference says on page 8 of 260,  
21 we get the underlying detail from page 11 of Exhibit  
22 257?

23 A. Yes.

24 Q. All right. The incremental equipment  
25 costs of \$4,555, if you look back at page 10 under the

1 description of Case B, which is the sample that is  
2 being referred to here, is it? In other words, I am  
3 not being clear, I am sorry.

4 Page 8 of 260 is a recap of the Case B  
5 analysis which is on table 6 of page 11?

6 THE CHAIRMAN: I thought this page 8 was  
7 just put in to show how, in theoretical terms, this  
8 calculation could be made.

9 MR. MARK: No. As I understand it, Mr.  
10 Chairman, it is, in fact, a summary of the detailed  
11 analysis of Case B on page 11.

12 Q. Is that right, Mr. Shalaby.

13 MR. SHALABY: A. Give me a second to  
14 confirm that. Yes, it is.

15 Q. All right.

16 A. We are offering a little more  
17 information in page 8, but it is a summary of that  
18 case, yes.

19 Q. Yes. And we can see, for example,  
20 the 4,555 number comes right out of page 11 and if we  
21 look at our extra -- pardon me, if we look on page 11  
22 at our savings from fuel of \$6,055, that is just the  
23 result of the subtraction of your gas cost and your  
24 avoided electricity cost as they are set out in more  
25 detail on page 8?

1                   A. That's right. That is the extra  
2 information, is that we broke down the electricity and  
3 the gas to show you where the savings come from.

4                   Q. Okay. I want to deal first with the  
5 incremental cost of \$4,555.

6                   As I understand your evidence previously,  
7 Mr. Shalaby, that represents the incremental equipment  
8 cost and the installation of the duct work?

9                   A. Yes.

10                  Q. All right.

11                  A. It is not the entire cost. I think  
12 it is allocated to a twenty year period or some period.  
13 [10:15 a.m.]

14                  Q. Yes, we are dealing with a twenty  
15 year net present value?

16                  A. That's right. So, we allocate the  
17 costs through that. If they live beyond that, then  
18 they have value beyond that time frame.

19                  MR. BURKE: A. There is one other item,  
20 it is the maintenance cost for the gas furnace  
21 incrementally over the electric furnace.

22                  THE CHAIRMAN: Over the what, I'm sorry?

23                  MR. BURKE: The gas furnace incrementally  
24 over the electric furnace.

25                  MR. MARK: Q. That is the maintenance

1 cost?

2 MR. BURKE: A. Yes.

3 Q. If you look at the description of  
4 Case B on page 10, Mr. Shalaby, you see it says about  
5 halfway down the paragraph, the cost of retrofits was  
6 assumed to be \$4,000.

7 MR. SHALABY: A. Yes.

8 Q. And we have \$4,555 in the column  
9 under Case B. Is the difference the present value of  
10 the twenty years of the maintenance experience?

11 A. The incremental maintenance.

12 Q. Yes.

13 MR. BURKE: A. That's part of it. There  
14 is also a function of the way the analysis is done,  
15 that the present worth of the lifecycle cost of the  
16 capital stream on the duct work is in fact a number of  
17 about \$2,900. There's a bit of the application of  
18 lifecycle costing to this particular piece of  
19 equipment.

20 So, what is listed here is an expenditure  
21 for duct work retrofit between \$2,500 and \$6,000 went  
22 into as \$4,000 and came out of the analysis at about  
23 \$2,900 in present worth 1989 dollars. The furnace cost  
24 of \$1000, and the maintenance effect that you are  
25 looking at is \$560.



1 Q. All right. So, just to clearly  
2 understand what is in this package of expenditures  
3 which comes out at the present value of \$4,555, we have  
4 the incremental cost of the furnace over the baseboard  
5 heater, we have the installation of the duct work and  
6 we have the incremental increase in the maintenance  
7 expense. Does that describe that basket of goods?

8 A. Yes.

9 Q. Now, in the Case B, as we have seen,  
10 you have taken the cost of retrofits to be \$4,000, and  
11 so that number then represents the net present value of  
12 your incremental cost of your furnace over the  
13 baseboards and the duct work insulation; is that right?

14 MR. SHALABY: A. The \$4,000?

15 Q. Yes, I am looking at the narrative  
16 description of Case B.

17 A. It is a retrofit cost, and as Mr.  
18 Burke and I were describing, some of that cost is  
19 allocated to the twenty years and some is allocated to  
20 a future period.

21 Was that your question, or am I answering  
22 a different question?

23 Q. I understand your point that you have  
24 to knock off some of the value because these things may  
25 have a life beyond the twenty years that you have

1 sought to present value. I understand that, and let's  
2 just try and leave that out of the analysis.

3 I just want to know the categories of  
4 things that are included in the \$4,000. We started  
5 with \$4,555 and we had three things. We had the  
6 furnace cost, we had the duct work cost, we had the  
7 maintenance cost.

8 Now, we go back at Case B and we have  
9 something which is generically called retrofit cost of  
10 \$4,000. I take it from what we have discussed before  
11 that that \$4,000 is intended represent two of those  
12 three items we have talked about, which is the  
13 incremental equipment cost and the duct work insulation  
14 cost?

15 MR. BURKE: A. My sense is not. I think  
16 that it is really giving the range -- in Table 5 there  
17 is something called duct work retrofit, it gives a  
18 range 2,500 to 6,000. \$4,000 roughly is the amount  
19 assumed for the duct work retrofit and I think the  
20 reader is left to figure out for himself, actually,  
21 what the incremental value of the furnace is, and that  
22 is around \$1000.

23 Q. All right. So, if we assumed \$4,000  
24 for the installation, and if it is, as you say, \$1,000  
25 for the furnace cost, then you must get a figure of at



1       least \$5,000.

2                   A. No, that's the thing. Present  
3       worthing it back to today over twenty years as opposed  
4       to probably the longer life of the duct work, reduces  
5       the duct works, the lifecycle cost over the life of the  
6       furnace present worth 1989 dollars is \$2,900. So, only  
7       \$2,900 of the roughly \$4,000 ends up being attributable  
8       to the duct work in present worth terms in 1989  
9       dollars.

10                  Q. Now, Mr. Burke, you have in Table 6,  
11       if you look at that, you have a heading "Assumed Life".  
12       You see it says "furnace" and it says "twenty years";  
13       right?

14                  A. Yes.

15                  Q. So you have, in fact, assumed a life  
16       of twenty years which is the same as the number of  
17       years you are using in your net present value  
18       calculation.

19                  A. For the furnace. So, that is not  
20       discounted. The furnace comes in at \$1,000, it's the  
21       duct work which has a life of forty years. That is the  
22       value that comes in less than its initial starting  
23       point.

24                  Q. Do you have the detailed analysis  
25       underlying this?

1                   A. I have sort of a summary of the  
2 printout of what is probably just a present value  
3 spread sheet type analysis.

4                   Q. I am just interested in getting  
5 something in light of what you have said now that will  
6 let us look at the costs you have used and the  
7 assumption such as the discount rate that you have used  
8 in coming up with your present --

9                   A. Our discount rate is 5 per cent real,  
10 the analysis is done over twenty years, the duct work  
11 is assigned a life of forty years, and because of that,  
12 the present worth contribution to lifecycle cost of the  
13 duct work is less than the \$4,000 we started with, it  
14 turns out to be \$2,900.

15                  Q. And the \$4,000, so I understand, it  
16 represents the duct work installation?

17                  A. Roughly.

18                  Q. And you said the cost of the furnace  
19 was what, the incremental cost?

20                  A. I think there is a situation of  
21 rounding here. We have got the gas furnace priced in  
22 Table 5 at \$2,500, the baseboard heaters at \$1,400 and  
23 it looks likes a gap of \$1,100, but in fact it's  
24 rounding up from \$1,050.

25                  Q. I'm sorry, where do we get \$1,050.

1       You said \$1000, this shows \$1,100. The \$1,050 is new  
2       to me.

3                   A. That's what I am saying, a case of  
4       rounding there.

5                   The precise number on my spread sheet  
6       here is \$1,050, which can be rationalized against the  
7       difference here as presented of \$1,100.

8                   Q. How do you get \$1,050, if we have  
9       coincidence of your net present valuing period of  
10      twenty years and the furnace life of twenty years?

11                  A. I am saying it is just rounding.

12                  Q. I'm sorry, Mr. Burke. Let me just  
13      finish, in Table 5 you have already a rounded  
14      difference of \$1,100?

15                  A. That's right.

16                  Q. The difference between the --

17                  A. I am saying there is no difference  
18      between the \$1,050 I was talking about and the \$1,100.  
19      It is the same number, it hasn't changed through  
20      present valuing or anything, it is just rounding.

21                  Q. Where do you get the \$1,050. Maybe  
22      it's only \$50, but I just don't see where it comes  
23      from, Mr. Burke. Can you help me? I may be  
24      misunderstanding you.

25                  MR. B. CAMPBELL: I thought Mr. Burke had

1       been quite clear. He was looking at the actual spread  
2       sheet calculations and the numbers for reporting  
3       purposes were rounded.

4                   MR. MARK: All right. I see.

5                   Q. Mr. Burke, would you be able later to  
6       provide us with a copy of that spread sheet? It's not  
7       a problem?

8                   MR. SHALABY: A. We can provide a copy  
9       of that.

10                  MR. MARK: Could we have an undertaking  
11       number for that?

12                  THE REGISTRAR: No. 267.20, Mr. Chairman.

13       ---UNDERTAKING NO. 267.20: Ontario Hydro undertakes to  
14       provide copy of present value spread  
15       sheet.

15                  MR. MARK: Q. Now Mr. Burke, if we look  
16       back at the Case B description, it talks about in the  
17       second sentence, assuming that the house does not have  
18       a chimney, a side vent is required to pipe the gas  
19       exhaust outside.

20       [10:25 a.m.]

21                  Where do we find the cost of that?

22                  MR. BURKE: A. Well, like I say, the  
23       cost of the duct work and the side vent, that is all  
24       buried in the \$4,000.

25                  Q. So, the \$4,000 now has been expanded

1 from duct work to duct work and the chimney.

2 A. The side vent, I think we're talking  
3 expenditures in the order of \$100 or \$200 for the side  
4 vent. It is not a big item. Again, effectively, it's  
5 in the \$4,000.

6 You have to understand, the cost of the  
7 duct work can vary widely as well. Because we have put  
8 a range there from \$2500 to \$6,000, and we've just said  
9 that a reasonable estimate of the cost of doing this  
10 retrofit, the duct work, the side vent - there may be  
11 other small things - is \$4,000 for this class of house.

12 Q. The duct work cost and the  
13 installation costs, I gather come from research done by  
14 your division, is it, Mr. Burke, or the economics ...

15 A. It's not my division.

16 Q. I'm sorry there is a research  
17 division.

18 A. Yes, research division has provided  
19 us with the -- well, they just provided us with the  
20 cost of the furnaces. I think the cost of the duct  
21 work they may have estimated but I think we had other  
22 estimates as well from energy management branch, and  
23 Mr. MacLellan is confirming that there estimates are  
24 roughly the same as the research provided us with.

25 Q. Mr. Burke, have you done any analysis



1 to be able to tell us at what price for the duct work  
2 given the possible variation in price, at what price,  
3 if any, for the duct work does your \$1500 net benefit  
4 disappear?

5 MS. FRASER: A. I believe there are two  
6 scenarios in Volume 2 of the PCRD. One that is  
7 economic and one that is not economic based on the  
8 different duct costs.

9 Mr. MacLellan is just turning it up now.

10 MR. MACLELLAN: A. For what it's worth  
11 though, I would suggest that based on the ratio of the  
12 initial cost to the present worth lifecycle cost of the  
13 duct work, roughly \$2,000 more spent on duct work would  
14 render the expenditure uneconomic.

15 Q. So, if our price of retrofit goes up  
16 by 50 percent then we lose all the benefit and there  
17 would be some type of proportional reduction in your  
18 net benefit as you move up your retrofit cost from  
19 \$4,000?

20 MR. BURKE: A. That's fair. Yes.

21 Q. Do you know where, what type of  
22 research or research division did come up with these  
23 estimates? Do you have any information on that?

24 A. No. I believe it's based on, on  
25 experience in actually doing this sort of work, having

1 it contracted, but I don't know.

2 Q. So, you don't know if they took data  
3 from a particular geographical location or a sample of  
4 locations?

5 A. No, I don't.

6 Q. Do you know whether in their analysis  
7 they considered whether the price of installation would  
8 be impacted at all by the scope and intensity of any  
9 retrofit program that was instituted?

10 A. Are you talking about the effect that  
11 if everybody was doing this at once it might cost more?

12 Q. Yes.

13 A. No. I don't think that they will  
14 have considered the pros and cons of that situation and  
15 certainly it would be in our interest to have an  
16 orderly progression in the market place which is why  
17 these things don't happen overnight.

18 Q. Let me ask a question I know Mr.  
19 Campbell never likes, but is there a report to you or  
20 summary to you that describes the research that was  
21 done and how the numbers were arrived at?

22 A. I'm not aware of that. No. We got  
23 basically the information over the phone, or I'm not  
24 even sure if there is a memo contains this fact, but I  
25 am quite sure I haven't seen a report as such.



1 Q. So, to the best of your recollection  
2 the retrofit numbers we have in here come from an  
3 undocumented telephone conversation with your research  
4 division?

5 MR. B. CAMPBELL: Actually Ontario Hydro  
6 employees only communicate by approved reports. They  
7 never actually communicate any other way.

8 MR. BURKE: But I can assure you this was  
9 an expert in the field in the research division.

10 MR. MARK: Q. In the research but not in  
11 contract.

12 MR. BURKE: A. This is in our  
13 conservation and utilization section.

14 Q. So you cannot help us out any more  
15 with giving us any of the assumptions, the research  
16 methodology, anything that was used to come up with  
17 this number?

18 A. No, I can't. I can only give you the  
19 added comfort that almost independently energy  
20 management branch in looking at this in their very real  
21 world and nitty-gritty way came up with similar values.

22 Q. Mr. MacLellan, is that so?

23 MR. MacLELLAN: A. Yes, but I don't have  
24 a report either.

25 MS. FRASER: A. Sometimes we even talk

1 to contractors. They don't write reports either.

2 Q. But they have invoices. Can you be  
3 of any more assistance Mr. MacLellan?

4 MR. MacLELLAN: A. All I can say is that  
5 our numbers when we were looking at this a number of  
6 months ago generally agreed with the research division.

7 We are trying to get some real experience  
8 in that through the Espanola project where there are  
9 some gas substitutions happening. We are also now that  
10 this is looking like it's a real thing and it's going  
11 to happen in program terms we are doing more in depth  
12 research into it to get more accurate numbers.

13 Q. Let's look at another aspect of the  
14 of the calculation, gentlemen, and, particularly, the  
15 extra gas supply costs.

16 I take it that there has got to be some  
17 cost associated with the interconnection of the  
18 residents to the gas supply, does there not, Mr. Burke?

19 MR. BURKE: A. The gas company incurs a  
20 cost, yes.

21 Q. Yes. And that is not reflected in  
22 this analysis?

23 A. No. We believe it is implicit in the  
24 rate charged to residential customers for space heating  
25 because if you do phone the gas company and ask to be

1 connected, they do not charge you separately.

2 Q. But that is price, Mr. Burke, and we  
3 have had a lot of discussion about avoiding costs and  
4 all those things, and the price the customer pays is  
5 not a reflection of the incremental cost of  
6 installation of support? Wouldn't you agree?

7 A. Well, that is very much a matter of  
8 debate. I would actually think that in this case it  
9 may very well be. A very large proportion of  
10 residential customers that buy gas are using it for  
11 space heating, so that on average I would suggest that  
12 the rate must have been well designed to capture the  
13 costs of connecting them to the system.

14 Q. But Mr. Burke, I'm frankly a little  
15 bit surprised. That is average cost. What we're  
16 concerned with here, are we not, is what is the actual  
17 incremental cost whoever pays it of a connecting ...

18 A. Yes, and what I'm asserting is that  
19 for this market the average and marginal costs don't  
20 differ by very much at all.

21 MR. SHALABY: A. And, also, Mr. Wilson  
22 indicated to you that is the assumption we are making  
23 now and he says that we are working to confirm whether  
24 that is an adequate indication of marginal costs or  
25 not.

1 [10:35 a.m.]

2 We indicated we don't have full knowledge  
3 of the gas industry and we don't know what the marginal  
4 costs of the gas industry are. We are using price as a  
5 proxy.

6 Is that the point you are debating or is  
7 it any different?

8 Q. No. We well understand, Mr. Shalaby,  
9 you are using price as a proxy. That is clear. But we  
10 want to go on from that and have a little bit of an  
11 understanding of how useful that is to use gas as a  
12 proxy.

13 Now, Mr. Burke, let me just come back to  
14 you, please, if I might. The price of natural gas that  
15 you are using is your forecast retail average gas cost  
16 that every consumer in this province is going to pay?

17 MR. BURKE: A. Residential retail.

18 Q. Yes, correct?

19 A. Correct.

20 Q. And the price paid by any particular  
21 consumer is not going to reflect the marginal cost of  
22 the gas hook-up for his house?

23 A. Well, I would argue it will come  
24 close to that because every gas consumer will, at some  
25 time or another, have had to have been hooked up and

1 the gas companies will set their rates based on  
2 collecting the cost of that from their rate base and I  
3 really think it is just a question of the pace with  
4 which those gas hookup fees are embedded in the rate  
5 base and the extent to which any program like this  
6 departs from the historical average of that. My sense  
7 is that this is not a bad proxy at all.

8 Q. Let me work backwards, Mr. Burke.

9 Would you agree with me, leaving aside  
10 for the moment, the question of whether the cost is  
11 recovered, the cost of the hook-up is recovered through  
12 the gas rates, we do somehow have to include in this  
13 calculation the cost of the connection of the house to  
14 the gas line, the actual incremental cost of that for  
15 the houses which are going to be converted?

16 A. In principle, yes, and it would be  
17 present worth over the life of the gas contract to  
18 the gas company. I don't know how many years, fifty  
19 years.

20 Q. And do I understand correctly from  
21 what you are telling me that your assumption is and the  
22 basis upon which you are proceeding is that the price  
23 the consumers who do convert pay for gas is going to be  
24 higher by the value of that hook-up cost spread over  
25 the twenty years of price than it would otherwise have



1       been? That is the only way to look at it, isn't it?

2                   A. I am suggesting we are dealing with a  
3       small amount and given that it is spread out over the  
4       life of the gas contract implicit with the house and  
5       that the rate base for the gas utility will include the  
6       incremental costs for a large number of houses every  
7       year and the difference between the gas company  
8       recovering the costs of those incremental houses and  
9       allocating all of the cost to one house -- sorry, the  
10      complete cost of the upgrade to a single house will  
11      make a very small difference to the overall price of  
12      natural gas or the avoided cost of natural gas.

13                  Q. So, what you are saying, Mr. Burke,  
14      is that this interconnection cost, if I may call it  
15      that, is going to be paid by all residential consumers  
16      of natural gas?

17                  A. That is implicit in the price using  
18      price as a proxy. What I am suggesting is, and I think  
19      the only issue, as far as I can understand it is, does  
20      it make a big difference whether you do that or whether  
21      you add it up component by component and I am  
22      submitting I don't think it makes a big difference.

23                  Q. I understand that. In order then,  
24      Mr. Burke, to properly reflect that cost, won't you  
25      agree with me that just looking at the gas bill for the



1 one installation does not reflect the recovery of that  
2 cost which you have just told us is, in fact, paid by  
3 all customers?

4 A. No. My problem is I don't know what  
5 to subtract from the gas bill for the amount that the  
6 gas company has already included in the price of gas  
7 for connecting customers to its system.

8 So, I can't just say I have got the price  
9 of gas as before and because I haven't put in something  
10 for connecting that customer to the system, really, the  
11 homeowner cost on a more marginal basis is the price of  
12 gas at the retail level plus the hook-up fee.

13 It is the cost of the hook-up fee taking  
14 into account the gas price, minus whatever the gas  
15 company has included for hook-ups. I don't know what  
16 that number is and I am suggesting that that number  
17 isn't all that different from the number we are using.  
18 It may be smaller, but it is not going to be a lot  
19 smaller.

20 Q. Mr. Burke, based on what you have  
21 told me a few moments ago, you are assuming that the  
22 incremental costs associated with the hook-ups of the  
23 houses that convert will be distributed over and  
24 collected from, all the residential customers as part  
25 of the average rate for gas, correct?

1                   A. I am not assuming that is the way it  
2     will be done. I am saying, by using the price of gas  
3     as a proxy for the marginal cost of gas, that is  
4     implicitly what is happening.

5                   Q. Yes. Well, your analysis, by using  
6     the proxy you have decided to use, what I have said is  
7     correct; you are assuming that the incremental hook-up  
8     cost for, let's say, 100 houses that convert are being  
9     paid by all whatever, 1 million gas customers, correct,  
10    through the average rate?

11                  A. Well, I don't know what the point is  
12    you are making here. I mean, we are using the price as  
13    a proxy.

14                  Q. Yes or no? Yes or no?

15                  A. The price that we have right now  
16    doesn't include any particular consideration of how  
17    many people convert.

18                  Q. I am talking about --

19                  A. I think you are building something in  
20    that is not in what we are talking about.

21                  Q. Mr. Burke, let's go back to the  
22    answer you gave me a few moments ago and try not to  
23    think where I am going. Let's just take it one  
24    question at a time, all right? We may do better that  
25    way. All right.

1                   You are the ones who have used price as a  
2     proxy. Your assumption is that the - and let's take a  
3     scenario. Let's put a couple of sample numbers on  
4     this. Let's say we have 100 houses that convert and  
5     you have 1000 total residential gas customers, just for  
6     sake of discussion. By using the price as the proxy,  
7     you are assuming that the incremental cost of the  
8     hook-ups of the 100 houses is going to be included in  
9     the price charged to all 1,000 customers and recovered  
10    through the rates paid by all 1,000 customers, correct?

11                   A. Yes. Can I just add, the gas system  
12    expands all the time and there are always customers  
13    being added and that is the way it is handled now.

14                   Q. I am not suggesting it isn't, but as  
15    far as I have gone is correct, am I right?

16                   A. Yes.

17                   Q. So, if when you do your cost analysis  
18    as you have done, all you do is take the gas bills of  
19    the 100 customers. You have only accounted for one  
20    tenth of the incremental hook-up costs, right?

21                   MR. HARPER: A. No.

22                   Q. I am sorry. Mr. Harper --

23                   A. I am sorry. I was sort of listening  
24    to this and maybe I will confuse this and maybe I  
25    won't.

1 Q. Mr. Harper, I will give you your  
2 chance, but I am dealing with Mr. Burke and he is the  
3 one who proposed the scenario.

4 Am I not correct in that conclusion? It  
5 is evident, isn't it, Mr. Burke?

6 MR. BURKE: A. I don't think it is  
7 evident. It depends a lot on the accounting practices  
8 of the gas companies and all kinds of the other things  
9 that have to do with the extent to which the rate level  
10 at any time reflects hook-up costs.

11 Q. Oh, but, Mr. Burke, I am staying with  
12 your proposal, your assumption, your proxy. It is a  
13 simple little analysis I put to you.

14 MR. B. CAMPBELL: And he has given you an  
15 answer.

16 MR. MARK: I don't think so, Mr.  
17 Chairman.

18 MR. B. CAMPBELL: Whether you like the  
19 answer or not, but he has given you the answer.

20 MR. MARK: He refused to answer the  
21 question, with respect.

22 MR. B. CAMPBELL: He has not. He has  
23 perfectly answered the question.

24 THE CHAIRMAN: I think you will probably  
25 have to agree to disagree on this.

1                   Actually, I was going to ask a question  
2           but I don't think I will. (laughter)

3                   MR. B. CAMPBELL: Mr. Harper, being our  
4           rate expert and dealing with rates, had something he  
5           wanted to add to this and I think he should be given  
6           the opportunity to do so.

7                   THE CHAIRMAN: In fairness, I think it  
8           would be all right for Mr. Mark to pursue it with Mr.  
9           Burke, but I think as far as the panel is concerned, we  
10          understand the difference of opinion.

11                  MR. MARK: Q. Mr. Burke, will you agree  
12          with me on this: The gas system is collecting revenues  
13          from all customers, some of which are were added some  
14          number of decades ago?

15                  MR. BURKE: A. Pardon me, I didn't hear  
16          all of that.

17                  Q. All right. Will you agree with me at  
18          least on this: That the gas companies collect revenues  
19          from all customers including customers added twenty  
20          and thirty years ago to the system?

21                  A. Yes. That has the effect that always  
22          old customers are paying for new customers.

23                  Q. Okay, that is the point.

24                  THE CHAIRMAN: And aren't new customers  
25          in a sense paying for old customers?



1 MR. BURKE: Well, it is averaged out.

2 MR. MARK: Q. Staying with the subject  
3 of natural gas costs, Mr. Burke, do you have any sense  
4 or can you at least give us some ballpark idea of what  
5 increment to gas prices over the gas prices you assumed  
6 in this analysis - in percentage terms I am talking  
7 about - would reduce the net benefit calculation to  
8 zero?

9 Is it as simple as the proportion that  
10 1500 represents to 8,095?

11 MR. BURKE: A. I think it would be but  
12 for the fact that we are present worthing a stream of  
13 numbers and in this case, we are present worthing them  
14 from 2002 to 2020, so I am not sure. I am not sure  
15 exactly the way it would end up, but it is in that  
16 ballpark.

17 Q. That is a fair ballpark, is it?

18 A. I think so. If I can think about it  
19 at the break and come back on that.

20 Q. Sure.

21 A. But I think that is the ballpark we  
22 are talking about.

23 Q. So, just doing some quick math, you  
24 are looking about a 20 per cent increase in the price  
25 of natural gas. Roughly speaking, we will eliminate



1 the benefit.

2 A. Now, we have to understand what we  
3 are talking about here. We are talking about an  
4 increase above our forecast--

5 Q. Yes.

6 A. --for the 2002 to 2020 period. It is  
7 not today's price.

8 Q. I understand that. And what degree  
9 of confidence do you have, Mr. Burke, that your gas  
10 price for those years -- what were they, 2000 -- what  
11 were the years again?

12 A. 2001 to 2020.

13 Q. For 2001 to 2020 are going to come in  
14 within 20 per cent of where you are?

15 A. It sounds like one of our favourite  
16 topics, Mr. Mark.

17 MR. B. CAMPBELL: Just file the OEB  
18 transcript.

19 MR. MARK: Q. You may appreciate, Mr.  
20 Burke, that certainty is a concern here.

21 MR. BURKE: A. Yes. Well, I cannot deny  
22 that we have suggested there is some risk to gas prices  
23 and I wouldn't -- I am not sure not whether we are on  
24 the record with a probability statement about the gas  
25 prices.

1 I know at one stage we did have something  
2 of that sort, but I am not sure it is included in our  
3 latest forecast.

4 Q. Well, I am interested in that. You  
5 do have some probability estimate of your gas forecast?

6 A. There was confidence band placed on  
7 the gas forecast, I believe, for the purpose of the  
8 thermal cost review. I could check that.

9 Q. All right. Could you and if it  
10 exists make it available to us?

11 A. Yes.

12 MR. MARK: Could we have an undertaking  
13 number for that.

14 THE CHAIRMAN: 267 point?

15 THE REGISTRAR: 21.

16 ---UNDERTAKING NO. 267.21: Ontario Hydro undertakes  
17 to check and produce, if available,  
18 the confidence band placed on  
the gas forecast.

19 MR. BURKE: It is probably already in an  
20 interrogatory response somewhere. We will get it to  
21 you.

22 MR. MARK: Q. You will understand if I  
23 haven't quite been able to find it.

24 MR. BURKE: A. Yes, we understand that.

25 [10:50 a.m.]

1 MR. SHALABY: A. I just want to say, we  
2 didn't hide it.

3 Q. Mr. Burke, would you agree with me  
4 that those who were engaged in the business of  
5 predicting energy prices back in the early 80s were  
6 incorrect by tremendous margins when they were  
7 predicting oil and gas prices that we are seeing today?

8 MR. BURKE: A. Some people were and some  
9 people weren't.

10 Q. By and large.

11 A. By and large, yes.

12 Q. And in response to energy price  
13 forecast that we saw back in the 70s and 80s, we had  
14 conversion programs from oil; correct? You are  
15 familiar with those?

16 A. Yes, oil to natural gas.

17 Q. And with the way prices have turned  
18 out compared to the projections, would you agree with  
19 me that you probably had an overinvestment in  
20 conversions?

21 A. Well, the switch from oil to natural  
22 gas is a much safer bet than a switch from oil, say, to  
23 electricity. Most of the conversions in the program we  
24 are talking about were to natural gas and I think all  
25 of those customers are still better off with a

1 conversion.

2 Q. The customers, of course, you are  
3 aiming at are the ones who are on electricity and a lot  
4 of those customers are going to be ones who converted  
5 from oil to electricity; right?

6 Or choose electricity as opposed to oil?

7 A. Well, I don't know about a lot, but  
8 certainly there are going to be some that might find  
9 themselves in that situation, yes.

10 Q. So, at least within the customer  
11 group that you are concerned with, we have got a number  
12 of people who in response to long-term predictions of  
13 energy prices have made what have turned out to be less  
14 than economic investments?

15 A. Actually, I am going to take the last  
16 statement back, because the analysis we made in 258  
17 assumed that we were only going to do conversions where  
18 natural gas was available. And to the extent that  
19 there was conversion from oil to electricity before,  
20 that was almost entirely where natural gas was not  
21 available.

22 So, I don't think we are going to find  
23 ourselves with too many people in a situation, if we  
24 restrict our fuel switching to areas where natural gas  
25 is available today, who have done a double switch.

1 Q. Do I understand correctly, Mr. Burke,  
2 that you are not assuming in your fuel switching study  
3 where you make a projection of the penetration rates or  
4 the achievements you will get in this program, you are  
5 not assuming replacement of existing equipment at  
6 retirement, but you are assuming that you will replace  
7 all the stock over your horizon regardless of whether  
8 the equipment is naturally retired?

9 A. Yes.

10 Q. Would you agree with me that  
11 replacing equipment before it is naturally retired,  
12 there is an economic cost associated with that?

13 A. Yes. But you also have before you  
14 results that indicate that there are net benefits to  
15 the switches and therefore it's not clear that the  
16 economic cost exceeds the net benefit.

17 Q. No. But one thing is clear you  
18 haven't done, Mr. Burke, is you haven't put that  
19 economic cost in your total customer cost analysis.

20 A. Yes. I think we haven't tried to  
21 assess the remaining value to an electric furnace ten  
22 years from now, to a certain extent that's correct.

23 Q. Why is that? Lack of data?

24 A. Yes, we don't have a very good  
25 history on the age profile of furnaces and also what



1       their remaining value is after ten or fifteen years.

2                   Q.   It's a subject of debate?

3                   A.   Yes.

4                   Q.   So, Mr. Burke, would it be fair  
5       looking at all these things we have talked about, that  
6       based on the rough analysis you have done so far, the  
7       net benefit as you calculate it in this example of  
8       \$1,500 could, under some very reasonable scenarios,  
9       disappear very quickly?

10                  A.   Yes.   And you are looking at the  
11       example that has the baseboard costs in it and you  
12       appreciate that that refers to only half of the  
13       potential in existing houses, and the other half  
14       doesn't have those baseboard costs.   There is much more  
15       room for error, relatively speaking, in any of the cost  
16       elements we are talking about.

17                  Q.   I am just working with the  
18       calculation.

19                  A.   So, we have a \$1,500 cushion at this  
20       point in that portion of the market and we have assumed  
21       that will cover most of these uncertainties you are  
22       talking about.   But when we do our more indepth  
23       analysis, I guess we will know for sure.

24                  Q.   You have no idea when we will see  
25       that indepth analysis, do you?



1           A. Well, I think we are going to have to  
2 do it fairly soon, but I think it is still going to  
3 take three to six months.

4           Q. Did you intend that will be filed in  
5 this proceeding when it's available?

6           MR. B. CAMPBELL: I assume this is being  
7 done for program support and if there is a major  
8 program development, there has been a lot of interest  
9 in programs in this area, and we try to keep the Board  
10 advised of significance matters. So, if there is a  
11 significant program launched, I would expect that it  
12 will be brought to the attention this Board.

13          MR. MARK: I think, Mr. Chairman, in view  
14 of the importance of this whole fueling switching  
15 issue, I think there has to be some certainty to  
16 ensuring that we have filed with the Board the further  
17 analyses that Hydro does from what they admit is a very  
18 rough one at first instance. I don't know if we need a  
19 specific undertaking, but I think there must be an  
20 understanding and direction that we are going to get  
21 updates on what Hydro has said are very preliminary  
22 sorts of analyses which justify this program.

23          THE CHAIRMAN: I thought that we talked  
24 earlier about this and that you thought there was  
25 something coming forward towards the end of the year

1       that would include some of these things.

2                   MR. B. CAMPBELL: That will be the  
3       integration of the plan in general. That certainly  
4       will be coming forward.

5                   In terms of the details of the further  
6       work in program development for fuel switching  
7       programs, which this analysis, I assume, would be part  
8       of, that's sort of a separate item.

9                   My general point is simply that, as in  
10      all cases, where there are significant pieces of work  
11      done, we do try to bring them to the Board's and the  
12      panel's attention, and I would expect that fuel  
13      switching being both new and clearly of interest, that  
14      we would do that.

15                  I would prefer not to take a particular  
16      undertaking because it will be outstanding for four to  
17      six months and I go around beating on people to get  
18      these things answered and they are going to be really  
19      annoyed at me if I do it for six months.

20                  But I am quite happy to give my friend  
21      the general assurance that significant changes in any  
22      of these things are brought to the Board's attention,  
23      and I invite him to check with me from time to time as  
24      to how it's coming along.

25                  MR. MARK: I think it will resolve it,

1 Mr. Chairman, if I have Mr. Campbell's assurance that  
2 as time progresses and we make inquiries about updates  
3 of these studies, if Hydro is generally prepared to  
4 share that information with us, we can leave it on that  
5 basis.

6 THE CHAIRMAN: I think that a general  
7 distinction between matters which they can right now  
8 make available with some further research from existing  
9 data and documents that may or may not be produced in  
10 the future. I think that maybe that sort of  
11 distinction should be made.

12 MR. MacLELLAN: I can tell you, Mr. Mark,  
13 that a significant portion of our department is now  
14 working on this issue and programs are being developed  
15 in anticipation of the legislation change.

16 MR. MARK: Yes.

17 MR. MacLELLAN: Some of the first people  
18 to know of those proposed or expected programs will  
19 actually be the membership of your client because they  
20 have very much a vested interest in that. But it will  
21 be coming out as a result of DS strategist runs, a lot  
22 of the substantiation sheets that you are familiar with  
23 from the PCRD, that kind of work will be coming out in  
24 bits and pieces over the next four to six months  
25 assuming a legislation change and expectation of some

1 program proposals sometime next year.

2 MR. MARK: Q. It's interesting you  
3 mentioned that, Mr. MacLellan, I was going to have some  
4 questions later, but let me get to them now.

5 Certainly you have made no announcement  
6 in any formal sense to the municipal utilities of any  
7 programs associated with fuel switching.

8 MR. MacLELLAN: A. No, we can't. We are  
9 not allowed to yet.

10 Q. Now, you have had some discussion  
11 here in the past few days about the Deep River project;  
12 correct?

13 A. Yes.

14 Q. I understand Hydro, as I understand  
15 the evidence, has actually committed funds to that  
16 project?

17 A. Yes, we have.

18 Q. And that is clearly a project  
19 involving conversion from electricity to gas?

20 A. Clearly a research project involving  
21 that, yes.

22 Q. You are actually putting up the money  
23 and you were going to have how many houses up in Deep  
24 River converted?

25 A. Well, that's not certain, and that's

1 what the amount of money depends upon.

2 Q. But you are going to convert a number  
3 of hours, you are actually going to do a conversion  
4 from electricity to gas.

5 A. We aren't, no. We are contributing a  
6 component of the capital cost of the pipeline  
7 extension. After that, the market will convert in a  
8 natural manner as promoted by the gas company. Ontario  
9 Hydro won't be involved in contacting homeowners to  
10 convert them over.

11 Q. What is the potential market up there  
12 that you are looking to? What do you see as the market  
13 of electrically-heated homes that are potentially going  
14 to be served by this pipeline extension?

15 A. There are about 1,600 electrically-  
16 heated homes that are considered that have potential  
17 for conversion in Deep River. We are expecting that  
18 approximately 500 of them will convert, over an eight  
19 year period, after this pipeline is completed.

20 Q. So, your evidence is that this  
21 program doesn't have to await passage of the  
22 legislation because you consider it to be a test  
23 project?

24 A. It's not a program; it's a research  
25 project essentially, and it has been positioned that



1 way to the board of directors.

2 Q. Ms. Fraser, are there any programs  
3 involving conversion yet in your segment, commercial?

4 MS. FRASER: A. The guaranteed energy  
5 performance program includes the possibility of fuel  
6 switching if the total seasonal efficiency of the  
7 building is improved.

8 Q. As I understand it, Ms. Fraser, what  
9 you are doing is that as part of one of your other  
10 programs, the guaranteed savings program, if a customer  
11 increases his efficiency by taking gas and not  
12 electricity, you will give him credit and incentive?

13 A. That's not quite correct. The  
14 efficiency of the use of the gas has to improve as  
15 well. The total seasonal efficiency of the building  
16 has to improve overall, which means essentially it's a  
17 high efficiency boiler that's going in.

18 Usually in the commercial building you  
19 are not dealing with a total conversion of your space  
20 heating system; you are dealing often with putting a  
21 gas boiler in place of the electric boiler that might  
22 be on the heat pump loop. So, that currently, as I  
23 understand it, is not restricted by the Power  
24 Corporation Act.

25 Q. I just want to understand it. You



1 have a program whereby you are paying money to people,  
2 giving them incentives to switch from electricity to  
3 gas?

4 A. That's right, and that program was  
5 vetted by the Municipal Electric Association Demand  
6 Management Committee.

7 Q. I am not saying it was or it wasn't  
8 but --

9 A. I am just adding a little information  
10 for you.

11 Q. In your savings by design program, if  
12 somebody achieves in designing a building, will you do  
13 the same thing?

14 A. At this point, no. That is a  
15 specific restriction in savings by design. But as I  
16 indicated to Mr. Rodger, that program could be easily  
17 adapted to a fuel switching scenario.

18 Q. Because I am advised, Ms. Fraser,  
19 that in at least one instance in a school in Port Hope,  
20 that you are actually paying about a \$160,000 incentive  
21 because the customer has put in gas space heating?

22 A. I am not familiar with the specifics  
23 but I can certainly find out.

24 Q. All right. If you could find out and  
25 see if that's right?

1                   A. I will take a look at break and if  
2                   not we can talk about it.

3                   Q. All right. Just lastly on this  
4                   question, gentlemen, in Exhibit 257, at page 8, Item  
5                   2.4, your summary of eligible markets for fuel  
6                   switching, in the second paragraph here is where you  
7                   say after taking gas availability into consideration.  
8                   And, Mr. Burke, is that where you are saying that you  
9                   are only considering the houses that have natural gas  
10                  available in your analysis?

11                  [11:05 a.m.]

12                  MR. BURKE: A. Well, I think references  
13                  to that pervade the whole paper.

14                  Q. If you look over at page 3, back to  
15                  page 3, am I correct that the last paragraph there  
16                  essentially tells us that you based your estimates of  
17                  natural gas availability on the 1990 residential  
18                  appliance survey?

19                  A. Yes, availability to people with  
20                  electrically heated houses.

21                  Q. When you say throughout this document  
22                  "availability of natural gas", what exactly do you  
23                  mean?

24                  A. Well, I am not sure how technical a  
25                  definition I can give, but essentially, we are not

1 envisaging anything unusual by way of a hook-up; that  
2 is, I don't know how many feet from the last main line  
3 we are assuming, but it doesn't involve any major gas  
4 pipeline extensions at all.

5 I don't know whether one subdivision  
6 abuts another. I would say that natural gas is  
7 probably available from the perspective of this, but we  
8 are not talking about any extra pipeline, any  
9 significant extra pipeline costs.

10 Q. But do you have some parameters  
11 defined for this phrase "availability of natural gas"?

12 A. Well, we had to rely on the survey  
13 because we don't know exactly how many of our customers  
14 are within so many feet of an existing gas pipeline,  
15 so, this is the best information we have. And my sense  
16 is that that is another element of this analysis that  
17 will require some research and be improved, but it  
18 seems to give a --

19 Q. Because you don't know whether the  
20 customer has answered your survey when they said  
21 natural gas was available to them, you don't know the  
22 basis upon which they said that, whether it meant  
23 somebody--

24 A. That's correct.

25 Q. --a mile over had it or whether

1       somebody next door had it?

2                   A. That's correct, there is an element  
3       of uncertainty it to this.

4                   MR. MacLELLAN: A. Our assumption is  
5       that it is available on the street.

6                   Q. And how do you justify that  
7       assumption?

8                   A. Well, it is not very concrete. It is  
9       discussions with some customers actually in connection  
10      with some of our other programs, such as heat pump and  
11      R2000, where it is only available in non-gas areas. We  
12      have had to get a little bit of a definition of that --

13                  Q. Well, I am sorry Mr. MacLellan, how  
14      does discussion with some customers on another program  
15      help you in analyzing the data you got from your 1990  
16      residential appliance surveys where customers  
17      subjectively answered the question whether they had  
18      natural gas available?

19                  A. It helps us understand what customers  
20      impressions are of that phrase, "is gas available"?  
21      They tend to think it is because a neighbor has gas,  
22      so, therefore, they could get it if they wanted to.

23                  Q. And that is the extent of your  
24      analysis in justifying what you say is on the street?

25                  A. That is the extent of our analysis,

1       yes.

2                   Q.   Would you agree with me on this, Mr.  
3       Burke, that the economics of this conversion proposal,  
4       call it your total customer cost analysis, must be  
5       sensitive to the magnitude of these hook-up costs?

6                   MR. BURKE:  A.  Certainly.

7                   Q.   So clearly, if you are talking about  
8       connecting all of these people who are potential to the  
9       subdivision next door, it is a tremendously different  
10      total customer cost analysis result than if you are  
11      talking about running a line from the street to the  
12      house?

13                  A.   Well, I don't know the fine points of  
14      gas system economics how much difference there is.  
15      Certainly, if you had to leap frog a whole community  
16      and run a pipeline from one community to another in  
17      between, I would expect those costs to increase  
18      significantly, but that is an area we are looking for  
19      more information about.

20                  Q.   But will agree with me just as a  
21      matter of principle, that the farther distance we have  
22      to go here in connecting these people, the lower your  
23      net benefit on your total customer cost analysis is  
24      going to be?

25                  A.   That's correct, yes.



1 MR. MacLELLAN: A. You are talking about  
2 all of the issues that are inherent in the program  
3 design in this area and they are just starting now.

4 Q. Sorry, your total customer cost test  
5 is not a program design consideration, is it, Mr.  
6 MacLellan?

7 A. Yes, it is.

8 Q. But it is primarily first and  
9 foremost a screening program?

10 A. No. I would say it is about equally  
11 both.

12 Q. If it doesn't pass the total customer  
13 cost test, it doesn't get to first base?

14 A. Right.

15 Q. All right.

16 A. And once we look into the program a  
17 lot more closely, examine all of the issues you are  
18 bringing up, the total customer cost test is again run  
19 and if it doesn't pass at that point, it doesn't get to  
20 second base.

21 Q. I understand that. Well, you can get  
22 pretty far around the base paths without a hit these  
23 days.

24 A. Well, we don't expect to steal  
25 second; that is my point. (laughter)



1 Q. Let's leave it at that. All right.

2 So, Mr. Burke, I just want to close this  
3 discussion by getting back to you, if I could.

4 If we are agreed that the hook-up costs  
5 are going to have an impact on your total customer cost  
6 test, would you not agree with me then that the price  
7 of gas proxy you have used cannot be, cannot include  
8 within it necessarily these incremental hook-up costs  
9 we have just been talking about?

10 MR. BURKE: A. I think we are back to  
11 the old issue. We don't know how much we are missing  
12 and so until we get more information, we will know --

13 Q. But, Mr. Burke, let's just go back.  
14 We have just established that it makes a difference to  
15 your total customer cost test if your hook-up charge is  
16 \$1,000 or \$100?

17 A. Certainly. In there we were talking  
18 in a nice theoretical context where we knew what all  
19 these amounts were and we were doing an avoided cost  
20 analysis.

21 And as I understand it, you have now  
22 reintroduced the question of the price proxy and the  
23 extent to which that adequately proxies.

24 Q. But you must acknowledge that if we  
25 don't know what the hook-up costs are --

1                   A. We have an idea what they are from  
2                   the street to the house.

3                   Q. But they could be an order of  
4                   magnitude greater. You just don't know.

5                   A. Well, we are assuming that we are not  
6                   including those people that are an order of magnitude  
7                   greater.

8                   That effectively, the 50 per cent  
9                   estimate which seems to be the matter of concern now,  
10                  that 50 per cent of the housing stock has gas available  
11                  to them, are, in fact, in close proximity to the gas  
12                  pipeline or more to the point, in the year 2000 they  
13                  will be.

14                  Q. Your forecast of natural gas prices  
15                  that you have used, Mr. Burke, is a forecast which is  
16                  entirely independent of the hook-up costs we have been  
17                  talking about here?

18                  A. Yes.

19                  Q. All right. So, if we know from our  
20                  discussion that the magnitude of those hook-up costs  
21                  are going to have potentially large impacts on your net  
22                  benefit --

23                  A. But our assumption is that they are  
24                  not. Our assumption is that we have got 50 per cent of  
25                  the people close enough that there is only one number

1 we are talking working with and it is a small enough  
2 number that the proxy is relevant.

3 Later on we might find that we can  
4 actually stretch it. We might even be able to hook up  
5 people that are further away. This is --

6 Q. So, do I have your evidence now, Mr.  
7 Burke, that the reason why you are content to use the  
8 gas price as a proxy is because you are making the  
9 assumption there is a very small hook-up cost because  
10 it is only to the street?

11 A. Effectively, yes.

12 Q. And you will agree with me that if  
13 your hook-up costs are substantially more, the wisdom  
14 of using price as a proxy quickly disappears?

15 A. Yes, and certainly it has been our  
16 assumption that these houses are very close.

17 Q. And just concluding this, Mr. Burke,  
18 will you agree with me - I am going back to our earlier  
19 discussion - that if the wisdom or the appropriateness  
20 of using price as a proxy varies with the quantum of  
21 the hook-up cost as a matter of principle, we know that  
22 the price doesn't, as you suggested previously, include  
23 within it recovery of all distribution and hook-up  
24 costs incremental associated with this program?

25 A. No, it may not.

1 Q. All right. In your fuel switching  
2 analysis, Mr. Burke, when talking about utility  
3 programs for conversion of existing houses, what  
4 penetration rate did you apply or assume for that?

5 A. I believe the number was 23 per cent  
6 of the eligible stock by the year 2000.

7 Q. As I understand your evidence in some  
8 earlier cross-examination, you use that number because  
9 it is the average penetration rate you project to  
10 achieve for all of your residential DSM programs?

11 A. I believe it is the average for the  
12 residential sector, but I think it also turns out to be  
13 the average for the thermal upgrade programs as well,  
14 within the residential sector.

15 Q. Can we find those programs in Exhibit  
16 76?

17 A. Yes.

18 Q. All right. And is that at Table A4  
19 or Appendix A4? Is that where we look for that?

20 A. Yes.

21 Q. Which ones are they, Mr. Burke, which  
22 you say also come out to a 23 per cent average, the  
23 ones you have characterized as, I think, the thermal  
24 envelope ones?

25 I am sorry, Mr. Chairman. It is Exhibit

1 76, Appendix A4, page -- yes, there are two pages of  
2 that appendix.

3 A. No. I think we better leave it at  
4 the residential sector total.

5 Q. Yes. As I look at these, at your  
6 menu, looking under existing houses, right, we have, as  
7 I see it, no program that has a penetration rate of  
8 greater than 20 per cent; am I right?

9 A. That's correct, yes.

10 Q. And indeed, if we look at the one  
11 which is perhaps most comparable, which is the heat  
12 pump, that is your heating system for a house. It is a  
13 substitute for a natural gas furnace or an electric  
14 furnace, right?

15 A. Yes.

16 Q. We have a penetration rate of 9 per  
17 cent; am I correct?

18 A. Yes.

19 Q. All right. Why do you think, Mr.  
20 Burke, that there is any reasonable expectation of  
21 getting a higher penetration rate for this program than  
22 any of the others in your catalogue of thermal upgrades  
23 and heating measures for existing houses?

24 A. Well, I will give you my opinion, but  
25 I think perhaps the program people are really the



1 people who might have a better sense of it.

2 I think that relative to some of the  
3 retrofit measures, this is a fairly straightforward  
4 thing to do, especially in a case where it is simply a  
5 switch of furnace from central electric to central gas.

6 So that it may need less resistance than  
7 a lot of these measures which get into the envelope  
8 itself.

9 I would expect there to be quite a  
10 difference between the penetration rates, in the cases  
11 that involve duct work. I would expect those  
12 penetration rates might be lower than the amount we  
13 have chosen and the ones that --

14 Q. And isn't up front cost or the first  
15 cost investment going to be a tremendous factor in all  
16 of this?

17 A. Well, I am sure that we will be able  
18 to offer incentives and that the gas companies will  
19 also be quite interested in facilitating this fuel  
20 switching exercise.

21 Q. We may get to that a bit --

22 MR. MacLELLAN: A. One major explanation  
23 could also be customer payback. Assuming a reasonable  
24 sized Ontario Hydro incentive, the proportion of people  
25 with forced air furnaces would switch over quite



1 readily because the paybacks would be very short.

2 [11:20 a.m.]

3 As Mr. Burke mentioned, the people that  
4 require duct work, the payback would be slightly longer  
5 depending on how the incentive is structured.

6 But the payback will certainly be shorter  
7 than a heat pump.

8 Q. One of the objectives of all your  
9 programs, Mr. Maclellan, is to give incentives which  
10 result in a payback period which is attractive for your  
11 customers.

12 A. Right.

13 Q. So, even with that as the foundation  
14 of these other programs, none of them you project will  
15 achieve better than 20 per cent?

16 A. We want to give paybacks that are  
17 attractive within the constraints of avoided cost and  
18 total customer costs.

19 Q. The incentives you would have to give  
20 to offset a significant portion of the up front cost of  
21 furnaces is going to have to be a pretty large one.

22 A. Percentage terms, probably.

23 Q. Have you done any analysis similar to  
24 the total customer cost analysis example we have been  
25 looking at in the residential for the commercial side,

1       that is not contained in Exhibit 257?

2                   MR. BURKE: A. No, and we haven't done  
3       it.

4                   Q. You draw the conclusion in Exhibit  
5       257, I think you are assuming that retrofits -- I'm  
6       sorry, let me ask this way.

7                   What is your assumption in Exhibit 257  
8       about what is and is not economic in the commercial?  
9       Are we just dealing with new stock?

10                  A. I believe it is also 25 per cent of  
11       existing stock.

12                  Q. So, Exhibit 257, in identifying the  
13       potential, assumes that retrofitting of 25 per cent of  
14       the existing stock will be economic within the  
15       constraints of your total customer cost test?

16                  A. Yes.

17                  Q. Can you tell me about the analyses in  
18       here, what assumptions you have made which underlie  
19       this conclusion?

20                  MS. FRASER: A. There is an analysis to  
21       the support the guaranteed energy performance program  
22       that is in the program concept reference document,  
23       PCRD, Volume 2, and it indicates it passes the total  
24       customer cost test by a wide margin.

25                  Q. Just help me out a little bit here,

1 Ms. Fraser, just give me what your avoided cost is,  
2 your incremental equipment cost, et cetera?

3 A. Those are all set out on page 37 of  
4 the section of the PCRD that has those. Do you want me  
5 to go through them one by one?

6 Q. Just briefly, if you would. I may  
7 have some questions as you go through them.

8 A. Do you want the average equipment  
9 cost?

10 Q. Yes.

11 A. All these runs were done on a square  
12 footage basis, because that's the way we deal with  
13 things in commercial sector, so it is 15 cents a square  
14 foot.

15 Q. And your avoided cost?

16 A. The net benefits were \$7.8 million  
17 for this particular scenario that was provided here.

18 Q. And that is?

19 A. The avoided cost is \$9.67 million.

20 Q. Just so I can understand this, Ms.  
21 Fraser, I want to make sure this is comparable. The  
22 avoided cost that you have used there and the net  
23 benefit you have used there is with respect to a  
24 different program, is your guaranteed savings program?

25 A. That's right, it's a commercial

1 scenario.

2 Q. It is not an analysis of the avoided  
3 cost and the net total customer cost test benefit of  
4 just a conversion of space heating?

5 A. No. Actually, what we did was we did  
6 separate runs for each sort of major element of the  
7 guaranteed energy performance program. What I was  
8 quoting from was the run with respect to space heating  
9 fuel displacement. There is another run for domestic  
10 hot water fuel displacement.

11 Q. That is fine. I just wanted to check  
12 that. It is a run that refers just to --

13 A. Just to the fuel displacement aspect  
14 of the guaranteed energy performance program. We then  
15 did a combined total as well on all those sheets.

16 Q. How do we get to the assumption of a  
17 25 per cent penetration rate?

18 MR. BURKE: A. The 25 per cent comes  
19 from the commercial end-use load forecasting analyst  
20 whose assessment from the data he has available to him  
21 of the proportion of the floor space which are heated  
22 by central electricity systems, and therefore are  
23 amenable to conversion. So we have assumed that where  
24 baseboards exist, it's not going to be economic to  
25 convert, and where heat pumps exist, it would be

1 undesirable to convert, so that it's really only the  
2 proportion of floor space heated by central electric  
3 furnaces of some kind that get to be included in this  
4 analysis, and that is layed out on page 6 of Exhibit  
5 257.

6 Q. And when we move from identification  
7 of potential to what you might get, are you assuming  
8 you will get 100 per cent of all those converting?

9 A. The attainable is 34 per cent.

10 Q. So, is it 34 per cent of that 25 per  
11 cent?

12 A. That's correct.

13 Q. Then perhaps my first question should  
14 have been, how do we get the 34 per cent; is that some  
15 average derived from other programs?

16 A. Yes.

17 Q. Is that your total commercial average  
18 penetration rate?

19 MS. FRASER: A. Correct, that's in  
20 Exhibit 76.

21 I would also point out that the scenario  
22 with respect to space heating fuel displacement ends up  
23 benefiting in terms of the distributor rate impact  
24 test, there a net benefit as well of \$3.5 million.

25 Q. I knew you would get that in



1        somewhere, Ms. Fraser.

2                    MR. MARK: Mr. Chairman, I am about to  
3        move on to some related by different areas. It may be  
4        an opportune time to take the morning break.

5                    THE CHAIRMAN: How are you doing as far  
6        as your time is concerned?

7                    MR. MARK: I will be within a half hour  
8        either way of my midday estimate, I think.

9                    THE CHAIRMAN: Thank you. We will break  
10       for fifteen minutes.

11                   THE REGISTRAR: This hearing will recess  
12       for fifteen minutes.

13       ---Recess at 11:27 a.m.

14       ---On resuming at 11:45 a.m.

15                   THE REGISTRAR: Please come to order.  
16       This hearing is again in session. Be seated, please.

17                   THE CHAIRMAN: Mr. Mark?

18                   MR. MARK: Thank you, Mr. Chairman.  
19       Before continuing, I think there were a couple of  
20       matters that were going to be looked at the break.

21                   Q. I think, Mr. Burke, you were going to  
22       look at the peak and energy numbers?

23                   MR. BURKE: A. I have actual numbers for  
24       July and preliminary numbers for August. And for peak  
25       it's 20.6 gigawatts for July, and I will give you the



1 average gigawatts for July as the energy measure.

2 That's 14.8. In August 21.2 is the peak gigawatts, and  
3 the average gigawatts in August, 15.2.

4 I can give you them weather-corrected as  
5 well if you are interested.

6 Q. Sure, while we are at it.

7 A. Weather-corrected peak for July was  
8 19.3 gigawatts, weather-corrected energy for July, 14.5  
9 gigawatts, for August weather-corrected peak, 19.2  
10 gigawatts, and weather-corrected energy 15 gigawatts.

11 Q. Thank you.

12 Ms. Fraser, you were going to, I believe,  
13 make some inquiries.

14 DR. CONNELL: I'm sorry. You said  
15 "energy", did you mean "average"?

16 MR. BURKE: The energy measure was in  
17 average gigawatts. It's the number of terawatthours  
18 for the month divided by the number of hours in the  
19 month. It is an hourly energy measure.

20 I was giving peak in gigawatts and energy  
21 in average gigawatts.

22 DR. CONNELL: Okay.

23 MR. BURKE: Would you like the number in  
24 terawatthours?

25 MR. MARK: I am satisfied, unless Dr.

1 Connell wants some more information.

2 Q. Ms. Fraser, just turning to you, you  
3 were going to see if you could find out anything about  
4 what I suggested was a school savings by design project  
5 in Port Hope?

6 MS. FRASER: A. Yes, I haven't been able  
7 to find out the details yet on that project. I  
8 certainly don't recall personally signing it and I  
9 would approve anything over \$10,000, anything over  
10 450,000 is approved by the vice-president.

11 If it is a project that's currently under  
12 discussion, it may be something that's been sent in  
13 anticipation of the change.

14 Q. Let me ask you this: If as part of  
15 the savings by design program you gave an incentive for  
16 the customer to install natural gas heating rather than  
17 a ground source heat pump, is that something which is  
18 not presently authorized?

19 A. That's right.

20 Q. Ms. Fraser, I am advised that that in  
21 fact is what happened at a school in Port Hope, an  
22 incentive of \$82,000 has been committed for that. I  
23 gather you don't know personally. I am wondering if  
24 you could make some inquiries, and advise whether that  
25 is correct?

1 A. Those inquiries are underway right  
2 now.

3 MR. MARK: Could we have an undertaking  
4 for that, Mr. Chairman?

5 THE REGISTRAR: 267.22, Mr. Chairman.

6 MR. MARK: Thank you.

7 ---UNDERTAKING NO. 267.22: Ontario Hydro undertakes to  
8 provide whether an incentive of \$82,000  
9 has been committed for the Port Hope  
School.

10 MS. FRASER: My project list is only by  
11 number, not by name of school.

12 MR. MARK: It may not even be named yet.

13 Q. Mr. Wilson, I guess, back to you, if  
14 I might. In Exhibit 314, which is our bundle of  
15 documents, if you could turn, please, to page 88.  
16 That's a letter of June 20th, 1991, from your Chairman  
17 to the Deputy Minister of Energy.

18 Mr. Chairman, I think that is already an  
19 exhibit. I'm not sure of the number but I have it in  
20 this package, in any event.

21 Mr. Wilson, I take it that the issues  
22 addressed in that letter are all still outstanding,  
23 none of those have been resolved between Hydro and the  
24 government?

25 MR. WILSON: A. To the best of my

1 knowledge, that's correct.

2 Q. Looking particularly at No. 2 where  
3 it says the impact of fuel switching incentive programs  
4 in Ontario Hydro and the Municipal Electric utility  
5 revenue and the corresponding rate increase  
6 requirements, Mr. Wilson would you agree with me that  
7 fuel switching is a program which has potentially  
8 substantial impacts on municipal utility revenue?

9 A. Yes, I think I would.

10 Q. And the problem that a particular  
11 municipal utility will face is when it losses  
12 substantial portions of load, its rates to other  
13 customers go up because you are recovering your  
14 distribution cost over a smaller load?

15 A. Yes, that's correct.

16 I would add, or remind you, I guess, of  
17 the observation that Ms. Fraser made a few minutes ago,  
18 at least in the one case where she looked at commercial  
19 buildings where fuel switching would occur. The  
20 utility cost test, rate impact test would show that the  
21 municipal utility would gain on the transaction in  
22 terms of a net revenue gain. Now, that may not be the  
23 case in all fuel switching situations but it's far from  
24 clear that fuel switching would impose a burden on  
25 municipal utilities.

1 Q. It certainly has that potential, and  
2 of all your programs this is one where there is a large  
3 potential; correct?

4 A. Well, in the residential sector, I  
5 may stand to be corrected, but a large number of the  
6 houses may not all be within municipal boundaries, so  
7 some of them won't be municipal customers.

8 Q. Mr. Wilson, it's a fairly simple  
9 proposition. Relative to your other types of programs,  
10 this is one which is near the top in terms of revenue  
11 impacts on municipal utilities potentially?

12 A. Yes, it's near the top in gross  
13 revenue impacts, yes.

14 Q. Am I correct, Ms. Fraser, that when  
15 you do your distributor rate impact test, you do it in  
16 aggregate province-wide?

17 [11:54 a.m.]

18 MS. FRASER: A. That's correct.

19 Q. So that doesn't assist us in  
20 assessing necessarily whether some utilities -- pardon  
21 me, I phrased it poorly. Within the whole province,  
22 you may have some utilities which are adversely  
23 impacted and some which are not?

24 A. Yes. That is a function of the load  
25 profile of the utility vis-a-vis the load profile of a



1 commercial building. What we are talking about here is  
2 displacing a heating which is obviously a seasonal  
3 endeavor and something that occurs right on the utility  
4 peak.

5 So, my assessment of why that distributor  
6 rate impact test is positive is because it reduces the  
7 gross revenue less than the net revenue, plus there is  
8 distribution saving in the winter.

9 When we are dealing with gas in  
10 commercial buildings, we are dealing with the large  
11 municipal utilities which have more constraints in  
12 terms of distribution.

13 Q. If you are in a situation with this  
14 program where you have some utilities that end up  
15 across your whole panoply of fuel switching programs,  
16 end up with significant adverse revenue impacts, is  
17 Hydro prepared to consider some type of financial  
18 amelioration within the bounds of your avoided cost  
19 constraints?

20 A. I don't know. If it is positive the  
21 other way, will the utility anti up for the other one?

22 Q. That is not my question, Ms. Fraser.  
23 (laughter)

24 And I know you like to say that, but with  
25 respect, it is avoiding the question, I think.



1                   A. Well, I think our position right now  
2   is what is indicated in Exhibit 275, is that that is a  
3   question that has to be addressed.

4                   Q. Well, does Ontario Hydro presently  
5   have a position on it?

6                   A. I am not familiar if we do.

7                   Q. In the example you gave, Ms. Fraser,  
8   the reason why the reduction of load at peak and the  
9   resulting power purchase saving to the utility is  
10  greater than the net revenue loss has to do with the  
11  time-of-use differential rate that Ontario Hydro  
12  charges, correct?

13                  A. The time-of-use differential and the  
14  demand charge itself.

15                  Q. Yes. If the utility, in turn, were  
16  to use time-of-use rates in charging its customer, the  
17  differential between the savings and the lost revenue  
18  will disappear?

19                  A. Again, I think that would be a  
20  function of overlaying the load profile of the saved  
21  load on the load profile of the existing load. I  
22  can't --

23                  Q. Assume for the moment a coincidence  
24  of the peak and assume that you have similar  
25  time-of-use rates being charged wholesale and retail,

1       you will know longer --

2                   A. In those situations, yes. I don't  
3       think we have too many municipal utilities with a 16  
4       hour peak.

5                   Q. And we are in a situation where over  
6       time we are seeing movement to time-of-use rates in  
7       your commercial sector at the retail level?

8                   A. Sorry?

9                   Q. We are now in a situation where over  
10      time you are seeing municipal utilities moving to  
11      time-of-use rates for general service commercial  
12      customers?

13                  A. Yes, and we are encouraging it.

14                  Q. All right. And as we get up to full  
15      implementation of that hopefully, then this  
16      differential calculation which gives this positive  
17      result is going to, at least, substantially diminish  
18      and in some cases disappear?

19                  A. In your hypothetical situation.

20                  MR. HARPER: A. Mr. Mark, I hesitate to  
21      try and jump in again, but if I can maybe be of some  
22      assistance. I think what you were discussing with Ms.  
23      Fraser is part of the issue, in the sense that if  
24      municipal utilities were to move to time-of-use rates,  
25      it would better match the wholesale rates and,

1 therefore, part of that benefit would disappear.

2 I think the other issue which she also  
3 mentioned and I don't want to be forgotten in the  
4 discussion is the degree to which the peak of this  
5 particular application, be it a space heating  
6 application, is exactly coincident with the peak of the  
7 utility.

8 Q. Yes.

9 A. Not all customers are coincident with  
10 the utility's peak and to the extent that you are  
11 taking off load that is more coincident with the  
12 utility's peak, it is going to be of some benefit to  
13 the utility as well.

14 Q. But that could go either way?

15 A. Yes. I think all she was pointing  
16 out in this particular instance is, this is one where  
17 the peak of that application was very coincident with  
18 the utility's peak.

19 Q. Yes. But in terms of the load factor  
20 of the peak, it could go either way in terms of  
21 benefiting or costing the utility?

22 A. Yes.

23 Q. And given the potential impacts, Mr.  
24 Wilson, do you intend to closely consult the municipal  
25 utilities as you move forward in your fuel switching

1 analysis and possibly your programs?

2 MR. WILSON: A. Yes.

3 Q. You will recognize that it is a very  
4 important issue for them?

5 A. Of course.

6 MS. FRASER: A. I would point out, when  
7 the Ministry of Energy came to the Demand Management  
8 Committee of the Municipal Electric Association to  
9 discuss the issue of banning the use of electricity for  
10 space and water heating in non-profit housing, the  
11 advice of the Demand Management Committee at that time  
12 was, if you are going to take water, be sure and take  
13 space heating because space heating usually costs us  
14 money.

15 Q. Sorry, they said, take?

16 A. A non-profit commercial building.

17 Q. They said take water and space? I  
18 may have missed it.

19 A. If you are going to take water, take  
20 space too. They recognized that they were making a  
21 profit on water heating, but they recognized that they  
22 were losing money on the space heating.

23 Q. Yes.

24 A. In the commercial building.

25 Q. They recognized those and they

1 suggested they all go?

2 A. That's right?

3 Q. Yes.

4 A. So that is consistent with the fact  
5 that the rate impact would be positive.

6 DR. CONNELL: You introduced the phrase  
7 "non-profit" there?

8 MS. FRASER: Yes, non-profit and socially  
9 assisted housing. That was the extent of the Ministry  
10 of Energy and Ministry of Housing's ban on the use of  
11 electricity for non-profit housing.

12 You mean the word "profit" with respect  
13 to municipal utility?

14 DR. CONNELL: No. I just wondered  
15 whether you were extending this to institutional.

16 It doesn't apply to institutional use at  
17 this point?

18 MS. FRASER: Not at this point.

19 MR. MARK: Q. In terms of the municipal  
20 utilities in addition to this rate differential impact  
21 we could get depending on how much they pay for the  
22 power saved and how much they collect for it, you also  
23 have, do you not, the question that you may end up with  
24 municipal utilities with surplus capacity or redundant  
25 assets which were installed to service particularly



1 some areas which were intensively electric? That is an  
2 issue as well that has to be addressed?

3 MS. FRASER: A. It could be. There are  
4 lots of issues that we have to look at.

5 Q. So far, we haven't started down that  
6 road, have you, of resolving those issues with the  
7 municipal utilities?

8 A. If we have, I am not aware. I  
9 haven't been involved in any of the discussions.

10 Q. Mr. Burke, you are aware, I take it,  
11 that the Ontario Energy Board is soon going to be or is  
12 endeavouring to embark upon a least cost planning  
13 investigation relative to the gas utilities?

14 MR. BURKE: A. I am aware of that, yes.

15 Q. You expect that some progress will be  
16 made in that forum on the question of trying to get a  
17 handle on the proper methodology for assessing the  
18 marginal cost of gas supply?

19 A. And that would be very useful if that  
20 happened.

21 Q. Have you been keeping yourselves  
22 abreast of the developments on the gas regulatory  
23 scene?

24 MR. WILSON: A. Can you elaborate on  
25 your question, please?



1 Q. Yes.

2 A. It is a pretty broad question.

3 Q. We know, do we not, Mr. Wilson, that  
4 there is soon to be a least cost planning hearing for  
5 the gas utilities before the Energy Board?

6 A. Yes.

7 Q. Inherent in that is the notion that  
8 the question of calculating avoided cost for gas supply  
9 is finally going to have to be addressed?

10 A. That is under discussion, yes.

11 Q. Would you agree with me that if that  
12 investigation takes place, it will represent a very  
13 good opportunity for Ontario Hydro and the gas  
14 utilities to work together or to be under the same  
15 regulatory umbrella to get into a comprehensive  
16 analysis of avoided cost of energy supply in general?

17 A. Yes, and we are looking forward to  
18 that development.

19 Q. Do you intend to participate?

20 A. At a minimum, we will be interested  
21 bystanders and we are considering the degree of our  
22 participation in that hearing right now.

23 Q. Would you agree with me that if we  
24 are going to establish an economic overall energy  
25 policy for this province, there should be some

1 confluence of methodologies for calculating avoided  
2 cost in all our energy utilities?

3 A. Yes.

4 Q. In view of that, do you not think it  
5 is perhaps more important for Hydro to participate than  
6 be a bystander at these upcoming hearings?

7 MR. B. CAMPBELL: With respect, Mr.  
8 Chairman, the witness has simply said that that is  
9 being considered. I think that having said that, that  
10 is as much as he can fairly be asked to say.

11 This matter is under consideration at  
12 Hydro. Hydro has an interest in it and just the degree  
13 of participation is not a matter that has been decided  
14 as I understand the evidence.

15 MR. MARK: Mr. Chairman, I didn't think  
16 it was particularly a difficult question. I understand  
17 it is under consideration, but I think this gentleman's  
18 views on whether one form of participation would be  
19 more beneficial than another isn't even the point Mr.  
20 Campbell addressed. I think it is a fair question.

21 MR. B. CAMPBELL: Well, it involves much  
22 more than one person's point of view in all of this.

23 MR. MARK: I understand, but his point of  
24 view is clearly relevant.

25 MR. B. CAMPBELL: Why is it relevant to

1 any issue, Mr. Chairman, is my question, before this  
2 Board? It may be relevant to Hydro's consideration of  
3 the issue, but with respect, it is certainly, in my  
4 submission, not relevant to any issue before this  
5 Board.

6 MR. MARK: I am wondering if I could  
7 respond to that, Mr. Chairman. I am frankly somewhat  
8 taken aback by that comment. It seems to me squarely  
9 one of the things this Board may want to consider is  
10 after what procedures, what consultations and in what  
11 context the fuel switching should proceed.

12 I can clearly see that somebody may  
13 advocate to this Board that that issue should be  
14 addressed in conjunction with the gas industry and  
15 perhaps under a unified regulatory umbrella of some  
16 sort that that is the most efficacious way to proceed  
17 with what may be a good idea.

18 THE CHAIRMAN: There is a considerable  
19 amount of evidence already from this panel from various  
20 members that they would look forward to some kind of a  
21 cooperative effort in this area with the other  
22 suppliers of energy, so I don't know how much farther  
23 you think you can go than that. That is what their  
24 evidence has been.

25 MR. MARK: I am in your hands. I am

1 prepared to move on, Mr. Chairman.

2 Q. Panel, I know there has been a fair  
3 bit of discussion with other counsel about the subject  
4 of the role of municipal utilities in demand  
5 management, and let me turn to that if I might.

6 Is it fair to summarize the evidence you  
7 have heard so far that you recognize that the extent to  
8 which the municipal utilities are committed to and work  
9 with you in this effort will have an impact on the  
10 results you would achieve?

11 Is that a fair summary, Ms. Fraser.

12 MS. FRASER: A. Yes. I believe my word  
13 was "critical".

14 Q. Looking back on just the history of  
15 the municipal utilities, Ms. Fraser, that historically,  
16 in this province, it has been the municipal utilities  
17 which have been primarily responsible for customer  
18 service and customer contact at the retail level?

19 A. Yes, with the customers that they  
20 serve.

21 Q. That's right. I am talking exclusive  
22 obviously of your directs and your power district.

23 A. Correct.

24 Q. All right. And to be sure that the  
25 record is clear, your municipal utilities purchase

1       about 70 per cent of Hydro's power; is that right?

2                   A.   Yes.

3                   Q.   All right.  And both in terms of load  
4       and number of customers, they serve the vast majority  
5       in both instances?

6                   A.   Correct.

7                   Q.   And that is an arrangement.  And that  
8       is, with municipal utilities being your primary  
9       retailers, that is an arrangement which has been in  
10      place since the inception of this business, oh,  
11      seventy, eighty years ago, right?

12      [12:10 p.m.]

13                  A.   Correct.

14                  Q.   Would you agree with me, in general,  
15      that the municipal utilities have over the years  
16      demonstrated a very, very strong and, indeed, almost  
17      passionate commitment to quality customer service?

18                  A.   Yes that's my knowledge of it.  
19      Definition of that is not ...

20                  Q.   But you have no problem with that  
21      statement in the general sense?

22                  A.   Yes, I don't -- I think if we had a  
23      service expert and did some analysis it might, the  
24      reality might be a little different than the rhetoric,  
25      but there certainly is a lot of passion about quality



1 customer service, reliability and that. I have not  
2 done that kind of analysis to know if that's the case.

3 Q. Well, there is no question from  
4 everything you've seen of the commitment of the  
5 municipal utilities to their mandate of quality  
6 customer service?

7 A. No.

8 Q. We also have a structure in this  
9 province where we have municipal utilities who are able  
10 to respond to local needs, which has its benefits as  
11 well, does it not, Ms. Fraser?

12 A. Yes, that and local government  
13 generally.

14 Q. Well, indeed, certainly in the  
15 context of demand management programs I think your  
16 evidence has been that consideration of and  
17 responsiveness to local circumstances and conditions  
18 are also going to be important, correct?

19 A. Correct.

20 Q. And there is no question that  
21 municipal utilities have the best knowledge of what  
22 local circumstances and conditions are?

23 A. I would say that would be true with  
24 the exception of things that we get at through customer  
25 research. The resources of municipal utilities are

1 such that they cannot mount a broad scale kind of  
2 market research that is evidenced in our registry of  
3 customer research.

4 Q. They are certainly a critical  
5 resource for you in terms of evaluating and gauging  
6 local conditions.

7 A. Absolutely. They are the first line  
8 contact with the customers as I said in my direct.

9 Q. I also take it, Ms. Fraser, that  
10 there's no dispute that in the demand management  
11 initiative, personal in-field customer contact is a key  
12 ingredient for success?

13 A. Yes, it varies across sectors.

14 Q. Indeed, in the package of exhibits  
15 that I have provided to you, Exhibit 314, page 91, I  
16 have included an excerpt from a paper from a fellow of  
17 the Oakridge National Laboratory. You recognize that  
18 laboratory as being one of the leading electric power  
19 research institutes?

20 A. Yes, although on my list of  
21 laboratories last week I forgot to mention that. That  
22 was just an oversight on my part.

23 Q. There's no question it is a  
24 substantial and reputable institute?

25 A. Absolutely.

1 Q. If you look at page 91, it was an  
2 interesting excerpt. It indicates that for an audit  
3 program in New York, they got four times the  
4 participation rate with personal contact as opposed to  
5 mail contact. Would that generally conform with your  
6 understanding of the importance of personal contact at  
7 the retail level?

8 A. This example deals with commercial  
9 customers, and certainly in my knowledge of commercial  
10 customers I would say that that is also true and,  
11 particularly, commercial developers, building  
12 owner/managers, they are not necessarily the bill  
13 payers.

14 Q. That's right. And these builders and  
15 developers and managers tend to, when they're customers  
16 of the municipal utility, be in regular contact with  
17 the municipal utilities?

18 A. My understanding is that the  
19 municipal utilities do not treat developers and  
20 builders as customers. They define the customer as the  
21 entity that then takes over the building and pays the  
22 bills.

23 Q. Let's leave that definition aside.  
24 These people tend to be in regular contact with their  
25 local municipal utilities?

1                   A. Correct. They are very often service  
2 issues. Exactly.

3                   Q. Well, take, for example, developers.  
4 They deal with the municipal utility when dealing with  
5 development charges and supply installations, and that  
6 sort of thing?

7                   A. Yes, we here about that a lot.

8                   Q. And certainly in terms of new  
9 construction that time in the process is paramount in  
10 providing you with the opportunity to get to maximize  
11 the design efficiencies?

12                  A. Well, actually in terms of maximizing  
13 design efficiencies you quite often have to get to them  
14 even before they are at the process. If they have  
15 already decided what kind of a service entrance level  
16 that they need, they probably have already sized their  
17 HVAC system, their lighting system, and done all those  
18 electrical design things, so we want to get to them  
19 even before that.

20                  Q. I appreciate that, but certainly that  
21 type of contact and communication that the developer  
22 and the municipal utility will have at that stage is an  
23 important opportunity for you to continue--

24                  A. Absolutely.

25                  Q. --to deal with the customer?

1                   Would it be fair to describe the  
2           municipal utilities as your customers, Ms. Fraser?

3                   A. I describe them as customers. They  
4           pay us for energy that they then retail to their  
5           customers. I describe them as allies in terms of  
6           partners in a variety of endeavors, not just demand  
7           management, electrical safety issues like that. I've  
8           also called them family so ...

9                   Q. You have varying terms on varying  
10          occasions I note, but would it be fair to say that  
11          first and foremost they are your customer?

12                  A. They are, there are 314 of them I  
13          think now.

14                  Q. And they are, first and foremost,  
15          your customers?

16                  A. They are customers, yes.

17                  Q. Well that's the dominating aspect of  
18          your relationship, is it not?

19                  A. Yes. In the fact that we regulate.

20                  Q. You regulate the rates?

21                  A. Correct.

22                  Q. Would you agree with me that, that  
23          one of the things the municipal utilities want from  
24          Ontario Hydro is to be treated more like customers?

25                  A. I have heard it expressed that way.



1 Q. Indeed, that's the result of your own  
2 survey isn't it? Wasn't one of the conclusions of your  
3 service relationship survey in 1990 with the municipal  
4 utilities wasn't one of the leading results that the  
5 municipal utilities wanted to be treated more like  
6 customers?

7 A. I would have to take a look at it and  
8 refresh my memory.

9 Q. I have included excerpts from this,  
10 Ms. Fraser. Exhibit 314. If you could look at page  
11 92?

12 A. Yes, I have that.

13 MR. MARK: And this is incidentally, Mr.  
14 Chairman, excerpts from exhibit number or Interrogatory  
15 No. 4.9.20.

16 Q. Ms. Fraser, what appears at page 92,  
17 that is an excerpt from Ontario Hydro's own summary of  
18 the highlights of the report, and I am reading at the  
19 second last bullet entry.

20 "Many of the municipal utilities feel  
21 that Ontario Hydro's service  
22 relationships could be improved through  
23 treating municipal utilities like  
24 customers and increasing communication  
25 with them."

1 Are you familiar, you have reviewed this  
2 survey before?

3 MS. FRASER: A. Yes.

4 Q. All right. And having refreshed your  
5 memory, will you agree with me that certainly one of  
6 the highlights of the survey as summarized by Hydro  
7 itself is that the municipal utilities want to be  
8 treated more like customers?

9 A. Many of them do. That's one of the  
10 highlights. I would also say that it has received its  
11 highest ratings on the two service areas that are most  
12 important to municipal utilities.

13 I think it is important to when your  
14 dealing with a survey such as this to look at ratings  
15 on particular service areas and then look in terms of  
16 what's most important. So, within that context, I  
17 would agree that that's been highlighted as something I  
18 think that in this sense it's highlighted because it's  
19 clearly something that is important to Ontario Hydro.

20 I don't think this from summary you could  
21 tell if it's as important as the -- it certainly is not  
22 as important as reliable electricity supply, high power  
23 quality and reasonable wholesale prices. I'm not sure  
24 where that fit in terms of the ten service area items.

25 Q. Let's not get confused. One of the

1 aspects of your survey, Ms. Fraser, as you've said was  
2 to get some ranking on ten service areas?

3 A. Correct.

4 Q. Your survey was far broader than that  
5 and it included a whole range of questions and issues  
6 which your experts surveyed the utilities on.

7 [12:20 p.m.]

8 A. Exactly, just like we survey our  
9 other customers.

10 Q. I am not quite sure what you are  
11 saying. It's really a simple question.

12 Would you agree with me one of the  
13 highlights that Ontario Hydro itself has identified -  
14 and I am not just talking about that little ten service  
15 area ranking - generally one of the things that you  
16 have highlighted right the beginning of your summary is  
17 that your customers, the utilities, feel that you  
18 should be treating them more like customers.

19 THE CHAIRMAN: I wonder if we could get,  
20 quicker than we are doing, to the role of the municipal  
21 utilities in demand management, because I think we are  
22 sort of spinning our wheels on this particular line of  
23 questioning.

24 MR. MARK: Q. Certainly, Ms. Fraser, the  
25 municipal utilities have also told you, certainly in

1 this survey and in other channels, that they want more  
2 involvement in your energy management initiative as  
3 well; isn't that true.

4 MS. FRASER: A. Yes, which is not  
5 necessarily consistent with them being treated as  
6 customers. It's consistent with them being treated as  
7 partners in demand management.

8 Q. Well, maybe we are getting into  
9 semantics here, but one of the things they said they  
10 wanted generally was as well more communication.

11 A. Yes, absolutely.

12 Q. And do you think it is inconsistent  
13 with the desire to be treated more like a customer, is  
14 that inconsistent with wanting more involvement and  
15 giving more contribution to DSM programs?

16 A. Can you run that by me again?

17 Q. I am not sure why you drew the  
18 distinction, but certainly there is no inconsistency  
19 between the desire to be treated more like a customer  
20 and the desire to be involved more in the design  
21 development and implementation of energy management  
22 programs.

23 A. Well, we don't have the other 3.6  
24 million electricity customers in the province designing  
25 all the programs.

1                   Q. I understand you don't. But do you  
2 see that there is some inconsistency between their  
3 desire to be treated as customers, more like customers,  
4 and their desire to be involved in the design and  
5 delivery of these programs?

6                   A. No, no inconsistency. It's just that  
7 they are not necessarily the same thing.

8                   Q. Fair enough. One of your tasks, Ms.  
9 Fraser, is to motivate the utilities to the greatest  
10 extent you can to take up this effort; correct?

11                  A. That's one of our challenges, yes.

12                  Q. And indeed, in general terms, one of  
13 the whole objects of DSM programs is to motivate people  
14 to do things?

15                  A. Correct.

16                  Q. You embark upon and spend a great  
17 deal of money on various motivational tools to do that?

18                  A. Correct.

19                  Q. And would you agree with me that in  
20 relation to the municipal utilities, one way that you  
21 could maximize the participation of the utilities and  
22 motivate them to the greatest extent is to ensure that  
23 they have a sense of ownership of the programs and  
24 initiatives that you develop?

25                  A. That's part of any kind of



1 motivational process.

2 Q. You are only going to instill a sense  
3 of ownership and proprietorship in your programs and  
4 initiatives, would you agree, if you involve the  
5 utilities in a serious way in the very earliest stages  
6 of your program design and development?

7 A. That is exactly why we had two  
8 representatives from the Municipal Electric Association  
9 on our strategic planning team in 1990.

10 Q. Let me start a bit ahead of that.

11 Does Ontario Hydro have any protocol or  
12 policy as to when and how the municipal utilities are  
13 going to be incorporated into the design and  
14 development stage of your initiatives?

15 A. That's currently the subject of  
16 negotiations and discussions and the task force is  
17 working on it for the large 30 municipal utilities, and  
18 we are expecting, with the help of the Municipal  
19 Electric Association, to cascade that down to the  
20 medium and then the smaller size utilities.

21 Q. That was a relatively recent effort;  
22 is it not?

23 A. That was February that we originally  
24 met.

25 Q. And this is one of the mechanisms by

1 which you hope to set a number of ground rules for  
2 involvement?

3 A. Yes, we have been trying various ways  
4 to do it, and now we are in this negotiation.

5 Q. You will be guided in those  
6 negotiations, I take it, by what your policies are in  
7 terms of municipal utility involvement?

8 A. Yes, and I think that process will  
9 help develop those policies.

10 Q. I am interested, what is the policy?  
11 Ms. Fraser, what is Hydro's policy on involvement of  
12 municipal utilities in design and development stages of  
13 your programs?

14 As I see it, there is presently no  
15 policy?

16 A. Currently, the mechanism that was  
17 developed with the Municipal Electric Association was  
18 participation by myself and the manager involved in the  
19 screening and evaluation who chairs the concept  
20 screening committee to sit on the demand management  
21 committee at the MEA.

22 Q. Yes. Now, that's an MEA committee.

23 A. Exactly.

24 Q. I am talking about having utility or  
25 MEA representatives involved in the key committees at

1 Hydro that make these decisions; is there any of that?

2 A. They were involved in the steering  
3 committee for the strategic planning process in 1990.

4 Q. As I understand it, that committee  
5 had one or two meetings and was disbanded?

6 A. There was more than one. Certainly  
7 more than two.

8 It went through a three-stage process.  
9 We did not do a similar strategic planning process in  
10 1991 given all the other things that were going on.  
11 That was an update process.

12 Q. So, that was a temporary committee,  
13 it some meetings, it no longer exists?

14 A. I'm not sure what the plans are in  
15 the future in terms of the steering committee.

16 Q. I am talking about today. That  
17 creature doesn't exist, the strategic planning  
18 committee on which you have any --

19 A. It hasn't met since the last time.

20 Q. That's right. In practical terms  
21 there is no distinction then between whether it meets  
22 or whether it exists. It's not doing anything.

23 A. Not right now.

24 Q. Is there any other way in which you  
25 have formalized the involvement of utility

1 representatives or MEA representatives in the essential  
2 planning and development structure at Hydro?

3 A. In the sector planning teams that  
4 fell from the strategic marketing team. We invited  
5 representatives of the MEA to sit on those teams, they  
6 didn't show up to all three meetings.

7 Q. We may have some evidence later on  
8 whether they did respond to invitations, but it's been  
9 quite some time either since those committees have met  
10 or you have issued invitations.

11 A. Correct. Again, we did not go  
12 through an elaborate strategic and sector planning  
13 process in 1991.

14 Q. Indeed, these committees which you  
15 say they didn't attend at, they don't do anything  
16 anymore. They don't exist.

17 A. I wouldn't say. I would say we  
18 haven't meet.

19 Q. So, you are not meeting, whether they  
20 are there or not, you are not meeting this year?

21 A. Correct.

22 Q. Now, is there any other committee you  
23 can tell me about or any other --

24 A. There are mechanisms throughout the  
25 field.

1 Q. Before we get to the field level --

2 A. That's a critical mechanism in  
3 program design, is for us to -- we have business teams  
4 that our field staff are represented on and they bring  
5 municipal utility input to those business teams.

6 Q. I will get to that, but let's stay in  
7 the confines of the design and development function at  
8 the top.

9 MR. B. CAMPBELL: Well, Mr. Chairman, I  
10 think the witness just said this very activity was  
11 essential in the design function that this head office  
12 group carries out. I don't think he can fairly --

13 THE CHAIRMAN: Mr. Mark is not ignoring  
14 the significance of that, he says he is going to get on  
15 to it in a minute or two. He is just now trying to see  
16 if there is anything more being done as he referred to  
17 it, at the top. I take it there isn't anything more or  
18 Ms. Fraser would have told us there was.

19 MR. B. CAMPBELL: I don't know that, not  
20 having heard her answer to this question.

21 I just took the question as trying to  
22 indicate that that was not an essential component of  
23 program design.

24 THE CHAIRMAN: I didn't take that, Mr.  
25 Campbell.



1 MS. FRASER: I would like to point out,  
2 program design is not something that's done at the top  
3 of Ontario Hydro.

4 MR. MARK: Q. Somewhere there is a locus  
5 for the strategic planning for these initiatives.

6 MS. FRASER: A. There is strategic  
7 planning, that strategy sets the broad umbrella within  
8 which we develop programs, but you are dealing with the  
9 whole hierarchy of activity here.

10 Q. But certainly those upper echelons  
11 can be summarized by saying the MEA presently has not  
12 been given an either formal or permanent role in that  
13 process by Ontario Hydro?

14 A. You are talking, the process that I  
15 hear you talking about is the concept screening  
16 committee or the program status review committee at the  
17 executive level? None of those things, no, they are  
18 internal Hydro committees.

19 Q. Is there any committee at Hydro or  
20 any decision-making body at Hydro from the top of your  
21 DSM program to the bottom where the municipal utilities  
22 have regular and standing participation?

23 A. Program design isn't a committee  
24 function. Program design is a specialist activity.

25 The mechanism by which we gather

1 information may involve committees, it may involve  
2 meetings. We do a lot of meetings on specific  
3 programs. We will go to specific utilities that have  
4 particular concerns. Mr. MacLellan can give you lots  
5 of examples in the residential area.

6 When I do take programs, for instance, to  
7 the demand management program committee on commercial,  
8 the degree of input that we get is very little in terms  
9 of the design.

10 Q. But you take those programs after  
11 Hydro has done at least a very substantial research and  
12 design undertaking, and you take what is close to a  
13 final product and you present it?

14 A. The last one I took was the savings  
15 by design and thermal cool storage, the revamp, and  
16 that was the very first step. I started with the  
17 demand management committee.

18 Q. Generally, though, that's the way  
19 that procedure works.

20 A. It is very important for them to have  
21 something to react to, because if we ask a question in  
22 a vacuum, that's what we are left with.

23 Q. I understand. I don't think we are a  
24 part of this.

25 What you do is you take a concept and you

1 develop at least an initial design, an initial program  
2 and then you take it to them and ask for their  
3 comments.

4 A. As I have indicated, we have to go  
5 through a concept screening process to determine if  
6 it's cost beneficial, so some of those things have to  
7 happen.

8 In some cases we also have to get  
9 approval from the board of directors before some parts  
10 of programs can be communicated publicly because the  
11 information flows very quickly and on some things that  
12 are supposed to be confidential, so that is another  
13 issue that we have to face in program design.

14 Q. So, is that one of the reasons you  
15 don't have, say, one representative from the MEA on  
16 some central strategic committee or advisory body?

17 A. I thought I testified that we do. It  
18 is just that those committees haven't met in the past  
19 year because we haven't revised the strategic plan.

20 Q. You are in the middle of - correct me  
21 if this characterization is wrong - you are right in  
22 the middle of an intensive demand management effort and  
23 you are developing programs and refining programs and  
24 looking at new programs as we speak; isn't that fair?

25 A. We are doing that all the time.

1 Q. That's right. And as we sit here  
2 today in 1991, other than the programs that you may  
3 bring to the MEA from time to time at its demand  
4 management committee, there is no formalized  
5 involvement of the MEA or municipal utilities in this  
6 process?

7 A. That's exactly what is under  
8 discussion now in negotiations with the largest 30  
9 utilities.

10 Q. Am I correct that that's the state of  
11 affairs?

12 A. Yes.

13 Q. Am I also correct that the municipal  
14 utilities have been asking for this greater involvement  
15 for quite a long time now, a number of years?

16 A. Yes, and we have been trying  
17 different ways to do that.

18 Q. And every suggestion the municipal  
19 utilities make doesn't find favour with Ontario Hydro.

20 A. I don't know that.

21 Q. Well, certainly there has been no  
22 accord on any of the suggestions that the municipal  
23 utilities and the MEA have made over the past couple of  
24 years?

25 A. Well, I would have to see all the

1 recommendations to know which ones you are talking  
2 about.

3 Q. Not that you are aware of anyway.

4 A. No.

5 I have been designing the government  
6 program hand in glove with Ottawa Hydro. I mean, we  
7 are....

8 Q. Indeed, I guess that's the converse  
9 side of it.

10 [12:35 p.m.]

11 When you actually get down in the field  
12 with the municipal utilities and certainly the ones  
13 which are more significant for you in terms of your  
14 demand management achievements, you make great strides  
15 when you work with them cooperatively?

16 A. The program I am talking about is not  
17 in the field yet. We started out with a pilot with the  
18 federal government, the three utilities that were  
19 critical with respect to the federal facilities that we  
20 are dealing with were there from day one involved in  
21 the steering committee with the federal government. We  
22 are literally negotiating that program almost as a  
23 three-party activity. I don't know how much more  
24 involved they could get.

25 The trouble is, there are three hundred



1 and some of them and it is pretty hard to find a room  
2 big enough to get them all in so they are all consulted  
3 and all involved in the design of programs at once.

4 Q. So what you have done in the face of  
5 that problem of the number of utilities is you have  
6 decided, am I correct, that you will have no formal  
7 policy or mechanism for incorporating their input into  
8 the design process?

9 A. No. I would say that is being  
10 negotiated right now in terms of what that is.

11 Q. I am sorry --

12 A. The approach that we have taken,  
13 there is not a written policy on it, is that we are  
14 going to be very strategic about how we do it and  
15 involving the ones that we think are critical and the  
16 utilities that are eager to get involved in certain  
17 activities, such as the compact fluorescent leasing in  
18 Guelph.

19 Sudbury Hydro has been very active in  
20 particular programs. I have got over twenty utilities  
21 that actually have participated in savings by design  
22 for their own facilities. We have got lots and lots of  
23 examples of specific activities with municipal  
24 utilities.

25 What seems to be very difficult is too

1 heavy an association which doesn't necessarily speak  
2 for all of them on any one issue and trying to get a  
3 consensus across a broad base of very, very different  
4 opinions. So, it has been much more practical, much  
5 more effective from our point of view to deal  
6 strategically with individual utilities as we can.

7 Q. So you incorporate them and involve  
8 them on an ad hoc basis; is that a fair --

9 A. I call it a strategic base basis.

10 Q. But not according to any policy or  
11 protocol, but simply as somebody in a particular  
12 program may think it may be useful, you will involve a  
13 municipal utility?

14 A. Actually, I think that is one of the  
15 best things about demand management, is that unlike  
16 some of the other Hydro functions which have to be  
17 dealt with in a strict procedural sense, such as our  
18 nuclear operations side of things, that demand  
19 management is a lot more creative, a lot more strategic  
20 and a lot more practical.

21 Q. Do you give any guideline, do you  
22 have any policy, have you issued any instruction to  
23 your people who do this - please let me finish - which  
24 tells them that it is imperative that at the early  
25 stage of a design program, they involve a municipal

1 utility rep?

2 A. Yes.

3 I give that guideline to my staff in  
4 commercial.

5 Q. That is just an oral direction you  
6 give them, is it?

7 A. Sure. I give them lots of them.

8 Q. Yes.

9 MR. MacLELLAN: A. They also understand  
10 that it makes sense because they are a prime delivery  
11 agent and, as you say, a customer, so involving them  
12 just makes sense in program development.

13 Q. Is it fair to say in summary that  
14 because of the large number of potential utility  
15 participants, it is not practical for Hydro to involve  
16 utilities directly in the design of demand management  
17 programs. Is that your present position?

18 MS. FRASER: A. It is not practical to  
19 involve all 315, 314 - I just have trouble keeping  
20 account of them even from day-to-day - in each and  
21 every program. There are programs some of them have no  
22 interest in.

23 And yet, what happens - and Mr. MacLellan  
24 has already given evidence on this with respect to the  
25 showerhead program - that unless they are individually

1 consulted, then they seem that -- there has been no  
2 consultation with the utilities.

3 I would even go further than that; that I  
4 have observed that when our field staff consult  
5 municipal utilities on specific issues, that the sense  
6 that you get from some of the utility managers is that  
7 because either the chairman or the vice-president had  
8 not phoned them particularly individually, they haven't  
9 been communicated with. "Oh, yeah, well, I just heard  
10 from that my field rep, but I haven't really been told  
11 it." Well, that is the field rep's job. And we  
12 reorganize to increase the level of contact between our  
13 field reps and the municipal utilities and it is  
14 working very well.

15 Q. Yes. What these observations are  
16 telling you is that there is room for and there must  
17 quickly be some improvement in and settlement of the  
18 nature of that relationship?

19 A. Absolutely, and I have got high hopes  
20 for what can come out of the negotiations with the  
21 large utilities.

22 Q. They have not been encouraging thus  
23 far though, have they?

24 A. Pardon me?

25 Q. The results of that haven't been

1 encouraging thus far?

2 A. I haven't been involved. I have been  
3 here.

4 Q. When it comes to actually  
5 communicating and advising the utilities of programs,  
6 do I understand correctly, Ms. Fraser, that there is no  
7 standard procedure for the dissemination of that  
8 information?

9 A. None that I am aware of for  
10 commercial or industrial.

11 MR. MacLELLAN: A. No procedure written  
12 down, no. There is a typical way we do it, but  
13 standard procedure would not describe it.

14 Q. And indeed, as I am advised, Mr.  
15 MacLellan, it tends to be a rather ad hoc arrangement.  
16 Sometimes there will be a communication from a CES  
17 office; sometimes there will be a communication from  
18 some committee at head office of Hydro and various  
19 methods such as that are used on an ad hoc basis; is  
20 that fair?

21 A. I would say the vast majority of the  
22 time the communication is through the CES office  
23 because, as Ms. Fraser says, that is their job.  
24 Usually that is done with materials prepared by head  
25 office staff.



1                   We try to do it at several stages. We  
2                   try to do it at quite an early stage to say this kind  
3                   of a program is coming. These are the skeletal details  
4                   of it.

5                   And then at a later time, we say, okay,  
6                   now it is coming. It is in a few months. Here are all  
7                   the pieces. Here is what it is going to look like.  
8                   But communication is always almost always done in the  
9                   residential sector through the CES field office.

10                  Q. What about in the commercial sector,  
11                  Ms. Fraser?

12                  MS. FRASER: A. With the exception of  
13                  the government program one that I talked about where  
14                  there are field offices involved in that as well, it  
15                  goes through the field office.

16                  And what I would add there is that quite  
17                  often, different utilities have requested Hydro to deal  
18                  differently with them. And one standard procedure is  
19                  impossible.

20                  Some utilities, the general manager wants  
21                  to be the one informed; some utilities, it is the  
22                  customer service manager; some utilities, it is staff  
23                  level; and in some utilities, we have, you know, dealt  
24                  with the staff. The information doesn't filter up, so  
25                  the general manager hasn't heard it before he gets a

1 printed document.

2 Q. Is it fair to say, Ms. Fraser, that  
3 what this is showing is that until there is some  
4 protocol or standardization for the timing and method  
5 of communications, you are going to continue to see  
6 instances as you have in the past of insufficient  
7 communication?

8 A. Yes, but I would also reiterate that  
9 the reason that there are differences and you can't  
10 develop that standard procedure is because the  
11 municipal utilities themselves do not agree on what is  
12 the best way to do that.

13 Q. Is that so, Ms. Fraser? Is that your  
14 evidence, that the reason why Hydro doesn't have a  
15 standardized dissemination procedure is because the  
16 municipal utilities don't want one?

17 A. That is my analysis of why there are  
18 so many differences in terms of the way information  
19 might get distributed to different points within a  
20 municipal utility in a particular field office.

21 Q. It is clear, though, that one of the  
22 persistent complaints you get from your utilities is  
23 that the communication from Hydro is not sufficient in  
24 terms of timing or nature; is that fair?

25 A. We very often get that complaint, you

1 are right.

2 Q. That was also one of the observations  
3 in the Price-Waterhouse customer relationship survey,  
4 was it not?

5 A. I don't disagree that that was in  
6 there.

7 MS. PATTERSON: Are you about to move on,  
8 Mr. Mark? I wanted to follow up with Mr. MacLellan  
9 about his statement that no announcement was made to  
10 the utilities about fuel switching because you didn't  
11 feel that you could make that announcement.

12 I am just wondering why that is Hydro's  
13 position, since you have obviously developed a program  
14 and you are having it dealt with at this hearing and  
15 you would want the utilities to know what your plans  
16 are even though they may change in detail.

17 MR. MacLELLAN: I don't think that things  
18 have developed far enough to even call them program  
19 plans. We are at a very early stage of this.

20 Virtually, all utilities now know that  
21 these fuel switching discussions and investigations are  
22 happening and they will be involved in the development  
23 of these programs.

24 But beyond saying there is likely going  
25 to be fuel switching assuming the legislation changes,

1 I am not sure what else we could tell them at this  
2 point. And that has been has been communicated through  
3 the MEA Demand Management Committee and also by the CES  
4 offices to all the individual utilities, that point. I  
5 don't think we have much else to tell them right now.

6 MR. MARK: If I may, I was going to  
7 address that and perhaps I might now.

8 Q. As we have discussed before, Mr.  
9 MacLellan, you are aware of the keen interest of the  
10 municipal utilities in the fuel switching issue?

11 MR. MacLELLAN: A. Yes.

12 Q. And as I understand it, there was no  
13 involvement of the municipal utilities in any way with  
14 any of the deliberations which lead up to Ontario Hydro  
15 deciding to undertake the Deep River test project; is  
16 that correct?

17 A. There was certainly a lot of  
18 discussion with Deep River.

19 Q. Yes.

20 A. They were extremely keen on having it  
21 done, but I don't know that any other utilities were  
22 consulted. We didn't say to any of the other  
23 utilities, is it okay if we run this research project  
24 in Deep River?

25 Q. But in the result what you had is you

1 did your investigations, perhaps with Deep River  
2 because they were the community there, and there was no  
3 other consultation either with the MEA or any other  
4 representative group from the other utilities about  
5 this program?

6 A. I actually don't know that for sure.  
7 I wasn't involved in those negotiations.

8 Q. As far as you are aware, there  
9 wasn't?

10 A. As far as I am aware, no, there  
11 wasn't, but I wasn't involved at all.

12 Q. The announcement of the Deep River  
13 project, has it been officially announced?

14 A. I don't know that. We don't always  
15 come up with an official announcement on research  
16 projects. We research things and do pilot tests all  
17 the time. They don't --

18 Q. This is not an insignificant research  
19 effort which is going to be conducted without anybody  
20 knowing. It is going to be a high profile event.

21 A. In financial terms, it is not all  
22 that significant.

23 Q. Not in financial terms, but in impact  
24 terms and concept terms, this is a significant event  
25 for anybody interested in the issues we are discussing



1 in this hearing?

2 A. Yes.

3 Q. As I understand it, the only  
4 announcement made to municipal utilities - in fact,  
5 there hasn't been any and they will find out when the  
6 rest of the world finds out through press or your  
7 evidence here and that is it?

8 A. As I say, I don't know what  
9 announcements were made.

10 Q. You are not aware of any?

11 A. No.

12 Q. Would you agree with me, Mr.  
13 MacLellan, if you are going to be undertaking fuel  
14 switching in a significant way in the residential  
15 sector across this province, you have to have the  
16 involvement and cooperation of the municipal utilities  
17 from day one?

18 A. Absolutely.

19 Q. Ms. Fraser, if I could turn back to  
20 you. We have talked about involvement in the programs  
21 and ownership of them. Let me turn to another issue.

22 Would you agree the other way you can  
23 motivate your customers is by the method you do  
24 generally, which is sharing the benefits of these  
25 programs with them?

1 MS. FRASER: A. Correct.

2 Q. Correct?

3 A. Correct.

4 Q. Your present policy, as I understand  
5 it, is that you are not prepared to share those  
6 benefits with the municipal utilities; is that correct?

7 A. No. In terms of the current approved  
8 programs, there are benefits in municipal utilities to  
9 the tune of \$185 million.

10 Q. Well, that is what you say is the  
11 present value of these long-term net benefits you  
12 calculate under your distributor rate impact test?

13 A. Correct.

14 Q. All right. None of your programs for  
15 any customer go forward unless it is economic, unless  
16 they are net benefitors at the end of the day, correct?  
17 [12:50 p.m.]

18 A. Unless the total customer cost test  
19 is passed, and the participate test intuitively would  
20 have to be passed. It's not a requirement; it's just  
21 intuitively.

22 Q. Your participant test has to pass.  
23 You have to be able to say that the initiative is  
24 economic for the customer.

25 A. Yes.

1 Q. And you, nonetheless, in those  
2 programs despite that they maybe economic without any  
3 incentive, you will offer incentives as are necessary  
4 to get the enrollment of the customer.

5 A. Correct.

6 Q. But you are not prepared to do that  
7 with the municipal utilities?

8 A. That I understand is one of the  
9 things that is under discussion at the large utility  
10 task force right now, and we are open to that.

11 Q. Let's be fair, Ms. Fraser, the  
12 present policy of Ontario Hydro on that issue is "no  
13 you won't"?

14 A. Present policy is that we will not  
15 compensate municipal utilities for lost revenue as a  
16 result of a program, same as our policy is that we will  
17 not gather up gained revenue from them.

18 Q. Just as you don't gather up gained  
19 revenue from all your other customers.

20 A. In some cases, that depends how you  
21 want to look at it. The fact that we have them  
22 participate and share a part of the cost, yes.

23 Q. You don't go out there and say to  
24 your customers who have adopted your programs, you are  
25 net winners at the end of the day, give us back the

1 money?

2 A. No, but that is one of the  
3 calculations that we take into account in terms of  
4 setting our incentive levels, is the return to them of  
5 that particular project. We don't always buy the  
6 payback down to zero.

7 Q. The fact of the matter is, you don't  
8 treat the municipal utility customers according to the  
9 same rules and guidelines; isn't that fair?

10 MR. B. CAMPBELL: Just a moment. Could I  
11 get some clarification on that because there are two  
12 aspects to this relationship and I think it is only  
13 fair that it be clear as to which aspect of the  
14 relationship we are talking about. There are efforts  
15 that are made by the municipal utilities presumably in  
16 their own facilities to change their lights and install  
17 energy efficient technology in their own offices and so  
18 on, there presumably is that aspect of the  
19 relationship. There is also the aspect of the  
20 relationship that is the simple buying and selling of  
21 power. Those are two quite different relationships.  
22 If my friend is saying you are doing one thing for  
23 customers on one side of the relationship and we want  
24 the same thing on the other side of the relationship,  
25 then I think he ought to be clear about that question

1 in sort of lumping all this relationship together.  
2 These are two different things. I think my friend  
3 should be clear about it.

4 MS. FRASER: With respect to their  
5 facilities --

6 THE CHAIRMAN: Just a minute, Ms. Fraser.  
7 I don't know the last time I told this panel, you don't  
8 have to answer questions unless you are asked  
9 questions.

10 MR. MARK: Mr. Chairman, I am not sure I  
11 agree with Mr. Campbell, but let me just clarify, go at  
12 it again and perhaps it would be helpful.

13 Q. Your present policy, Ms. Fraser, is  
14 that you will not -- leaving aside the actual  
15 installation of a light bulb in its own facility by a  
16 municipal utility, that type of instance, you will not  
17 consider sharing any of the benefits that would be  
18 available to you to distribute as incentives to  
19 municipal utilities even if those municipal utilities  
20 tell you that by that incentive they would be able to  
21 participate in a program or more effectively in a  
22 program.

23 MS. FRASER: A. Well, we do intend to  
24 share the benefits of reliability, increased  
25 reliability with them and benefits of customer



1 satisfaction, and we do have a policy that we will  
2 compensate them for out-of-pocket costs. We do  
3 training for them, training of their staff, et cetera,  
4 et cetera.

5 What we want to do through the large  
6 utility negotiation is develop a more generic approach  
7 to what we have been doing in the water heater tune-up  
8 program which is compensating utilities for work that  
9 they have done.

10 On the other side, we are looking at them  
11 as customers, as consumers of electricity. Just in the  
12 savings by design program alone, we are looking at  
13 three megs, and we are looking at incentives in excess  
14 of \$15 million for those projects.

15 Q. If a municipal utility comes to you  
16 and says, this program will have a negative net revenue  
17 impact on us and you have capacity in your avoided cost  
18 analysis to share some of those benefits with us, you  
19 will not do it?

20 A. We will not compensate them for lost  
21 net revenue as we will not ask them to chip in for  
22 gaining that revenue.

23 Q. I take it the reason for this is your  
24 sense that because of the nature of the municipal  
25 utility as a public utility, you don't think it's a

1 appropriate, is that the rationale?

2 A. That net revenue effect is small and  
3 on total, as I have indicated, right now the benefit is  
4 \$185 million to the good.

5 Q. That's in aggregate, but Toronto  
6 Hydro doesn't share North York's costs and profits and  
7 revenues; do they?

8 A. Throughout the wholesale power rates  
9 they do.

10 Q. Let's talk about a particular  
11 utility.

12 A. Okay.

13 Q. Do I understand the rationale for  
14 this policy is that because they are public bodies,  
15 that you don't think it's appropriate to be offering  
16 them those types of payments. Is there any other  
17 rational?

18 A. I think the concern has to do with  
19 the impacts on rates.

20 Q. Sorry, that you may be raising rates  
21 by paying incentives?

22 A. Correct.

23 Q. But that's always what happens when  
24 you pay an incentive.

25 A. So if we pay more incentives we may

1 raise rates more.

2 Q. But what is it about the municipal  
3 utilities as opposed to anybody else in the  
4 constellation of customers you have that makes you  
5 reluctant to pay it to them, is it because they are  
6 public bodies? Is it because they have particular  
7 shaped buildings? What is it about them?

8 A. I think the reluctance stems from the  
9 fact that if we got into the accounting nightmare of  
10 credits and debits with respect to demand management  
11 programs in terms of where there was a benefit and  
12 where there was a negative, we would spend all of our  
13 time doing that and none of our time saving energy and,  
14 quite frankly, saving energy is what we are in the  
15 business to do.

16 Q. Is that your evidence, Ms. Fraser?

17 A. That's what I said.

18 Q. Because your evidence is that your  
19 resistance to this benefit sharing that I have talked  
20 about is your concern that the accounting functions  
21 associated with it are too difficult?

22 A. Well, my evidence is that on net  
23 right now, it would run the other way, and we certainly  
24 don't think that that would engender support from  
25 municipal utilities if we went through that process and

1 asked them to ante up the \$185 million.

2 Q. So, you have don't offer incentives  
3 to utilities to compensate for lost sales that would  
4 occur from successful demand management programs  
5 because of this accounting issue?

6 A. On net right now, we come out to the  
7 good \$185 million. So, the only thing you can read  
8 from our policy so far is that we don't charge you when  
9 they are to the good.

10 Q. If it could be demonstrated, Ms.  
11 Fraser, that clearly they are not to the good or that  
12 they won't be to the good, would you then consider it  
13 appropriate to share benefits with them in the way I  
14 have suggested?

15 A. That's something that I understand is  
16 under discussion at the large utility task force. I  
17 don't want to prejudge the outcome of those  
18 discussions.

19 Q. I don't want to belabour this too  
20 much, Ms. Fraser. Isn't it Hydro's present position  
21 that you won't do that?

22 A. We won't compensate them for lost net  
23 revenue. We are looking at ways in which we will pay  
24 them for energy saved, or pay them on the basis of  
25 performance or participation of programs. So far we

1 have demonstrated in the water heater tune-up program  
2 that we will pay for their costs involved in that, we  
3 have put on lots of joint seminars where we pick up the  
4 cost, the utility gets the profile, when we give an  
5 incentive cheque the utility's name is on the  
6 presentation scroll there, and quite frankly sometimes  
7 they are more interested in that aspect than they are  
8 in the programs themselves.

9 DR. CONNELL: I simply wanted to ask if  
10 one of the panelists could tell me. As we stand at the  
11 moment or as we stand pre-demand management, what is  
12 the range of rates amongst the utilities? Do you find  
13 a variation as much as say 10 per cent across the  
14 province?

15 MR. HARPER: I guess there are various  
16 rate structures for each utility, but if you look at,  
17 say, the average revenue they collect from the  
18 residential customers across utilities, I would say the  
19 variation could be as much as 10 per cent.

20 There was some material filed reporting  
21 the average revenue for all the municipal utilities  
22 from 1980 to '89 as an interrogatory response which  
23 would give you some sense of that, I could get the  
24 reference for you if you are interested.

25 DR. CONNELL: Yes, I would be interested.



1                   Perhaps a follow up question. If there  
2                   were some adverse perturbation for a particular  
3                   municipal utility, is it conceivable that it would be  
4                   comparable to that, say as much as 10 per cent or are  
5                   we talking about much smaller effects than that?

6                   MS. FRASER: Much, much smaller effects.  
7                   It's my understanding.

8                   MR. HARPER: Yes, I think you are talking  
9                   about much smaller effects.

10                  Maybe to just follow up, we did some work  
11                  last year looking at the programs Hydro had approved at  
12                  that particular point in time, and trying to take each  
13                  of the top forty utilities in the province and look  
14                  specifically at their rate structures, both wholesale  
15                  rate structures and retail rate structures, and assess  
16                  what was the impacts of those approved programs on  
17                  those utilities. As Mr. Mark noted, the impacts varied  
18                  across utility, (1) because of the rates, and (2)  
19                  because given the customer mix of each utility you are  
20                  going to have different participation and different  
21                  types of programs within each utility.

22                  But overall on net, the impact on their  
23                  rates on average for those utilities was less than one  
24                  per cent.

25                  DR. CONNELL: There is no existing

1 mechanism for smoothing out what might appear to be  
2 inequities in rates across the province?

3 MR. HARPER: Well, I think part of the  
4 reason for those differences in rates arises because of  
5 differences in the municipal utilities themselves.  
6 Some have higher density than others and therefore they  
7 have less lines, facilities in order to serve a fixed  
8 number of customers, some of them have different  
9 customers mixes. So, to a large degree that variation  
10 in rates reflects a difference in the cost of serving  
11 the customers.

12 DR. CONNELL: Thank you.

13 MR. MARK: Mr. Chairman, I am going to be  
14 a few more minutes, probably at least 15 to 20, it may  
15 be appropriate to ...

16 THE CHAIRMAN: Within a half an hour, do  
17 you think?

18 MR. MARK: Yes.

19 THE CHAIRMAN: Even notwithstanding the  
20 nature of the cross-examination? Have you finished  
21 this subject?

22 MR. MARK: No, I have some more to do  
23 on - it depends what you mean by subject - on some  
24 related issues, which is the balance of my  
25 cross-examination, but I expect to be at least 15

1 minutes.

2 THE CHAIRMAN: The subject I take to be  
3 the relationship between the proponent and the  
4 municipal utilities.

5 MR. MARK: Yes.

6 THE REGISTRAR: This hearing will adjourn  
7 until 2:30.

8 ---Luncheon recess at 1:05 p.m.

9 ---On resuming at 2:37 p.m.

10 MR. B. CAMPBELL: Mr. Chairman, I  
11 believe there was one question that Dr. Connell asked  
12 where Mr. Harper referred to an interrogatory. He was  
13 going to look up the number. I believe he now has  
14 that.

15 MR. HARPER: Dr. Connell, that was a  
16 Consumers Association of Canada Interrogatory No.  
17 4.12.58.

18 MR. MARK: Thank you, Mr. Chairman.

19 THE REGISTRAR: That should be given a  
20 number if it hasn't already been given one.

21 261.64, Mr. Chairman.

22 ---EXHIBIT NO. 261.64: Interrogatory No. 4.12.58.

23 MR. MARK: Thank you, Mr. Chairman.

24 Mr. MacLellan, this morning we sort of  
25 interrupted our discussion at one point and were

1 talking for a bit about the fuel switching program in  
2 your communication with the municipal utilities on that  
3 issue. Do you recall that?

4 MR. MacLELLAN: A. Yes.

5 Q. Just completing the issue on that,  
6 Mr. MacLellan, am I correct that because of the draft  
7 legislation dealing with fuel switching, Ontario Hydro  
8 has now suspended the hot water tune-up program?

9 A. That's one of the reasons. We were  
10 suspending it anyway because we were developing a more  
11 extensive home tune-up program to take its place that  
12 addressed not only water heating but other elements of  
13 home energy use as well but the draft legislation made  
14 that decision a certainty.

15 Q. You may have been changing programs  
16 but certainly whatever the program, you have eliminated  
17 the hot water tune-up element because you don't want to  
18 be tuning up water heaters which you hopefully  
19 eventually to replace?

20 A. Yes, we have to figure out how to  
21 make sure that doesn't happen.

22 Q. Your water heater tune-up program, as  
23 I understand it, was one of the programs that the  
24 municipal utilities were actively involved in a  
25 delivery capacity?

1                   A. Yes, they certainly embraced that  
2     program. We had, I think, at last count 65 utilities  
3     actively involved in it. The utilities delivered a  
4     program that Ontario Hydro in conjunction with a few  
5     utilities developed and, in fact, Ontario Hydro paid  
6     virtually all of the incremental costs of the program.

7                   Q. That's right. But in terms of having  
8     to deal with customers and participate in a program,  
9     this is, perhaps, the broadest scale and most wide  
10    ranging program you have had with their involvement?

11                  A. Yes and that's actually very  
12    interesting because it's also the program that on a  
13    rate impact measure is the worst for utilities, but  
14    it's clearly the best in terms of customer service.  
15    It's the worst in terms of the rate impact on  
16    utilities, but they seem to accept that.

17                  Q. I'm told, Mr. MacLellan, that you did  
18    not consult with those municipal utilities involved in  
19    the program before you made the decision to suspend it.  
20    Is that correct?

21                  A. I believe that is correct.

22                  Q. In some cases you had the situation  
23    that the utilities had booked the tune-ups, had  
24    customers waiting, had delivery persons under contract,  
25    and were told rather summarily that the program was



1       stopping?

2                   A. I don't believe anybody who made hard  
3       commitments had the rug pulled out from under them. If  
4       they had people hired and everything all set up they  
5       were allowed to go ahead until the end of 1991.

6                   Q. In fact, that's a change you made  
7       because when you first announced the halt you didn't  
8       make that exception. It was only after you were  
9       importuned by those utilities who found themselves in  
10      that position that you decided to let them continue?

11                  A. Yes. When we went to them and said,  
12      "We're probably going to stop this.", they said, "Hey,  
13      wait a minute here. This was back -- it was probably  
14      February or March, and a number of utilities had  
15      already moved ahead to hire staff starting early May.

16                  Q. In fact, you didn't tell them at that  
17      time you were probably going to stop it? That was an  
18      announcement to them that the program was stopping?

19                  A. Yes, with the explanation that it was  
20      because it was being enlarged, and then later on it was  
21      also because of fuel switching.

22                  Q. Ms. Fraser, we had some discussion  
23      this morning about that survey of the municipal  
24      utilities conducted by Price Waterhouse, and I know  
25      there has been some discussion previously including

1 some mention of the priority, the apparent conclusion  
2 about the priority placed by the municipal utility on  
3 energy management. Do you recall those discussions  
4 with others?

5 MS. FRASER: A. Yes.

6 Q. If you could turn to page 98 of the  
7 package, Exhibit 314. Can you just confirm for me, Ms.  
8 Fraser, that this is the part of the survey  
9 questionnaire which asked for the ranking that we have  
10 heard so much about?

11 A. Correct.

12 Q. Just so it's clear, what the  
13 utilities were being asked to do here was not rank  
14 things of importance to them in their business, but  
15 aspects of the service provided by Ontario Hydro?

16 A. Correct.

17 Q. And the instructions included the  
18 direction that they couldn't rank any items equally?  
19 They had to rank them from one to ten?

20 A. That's the standard survey kind of  
21 approach. Yes.

22 Q. Ms. Fraser, we were also discussing  
23 this morning to get back to the topic we were on at the  
24 recess this ...

25 A. Can I interrupt just for a second? I

1 have got the information on that school that you  
2 wanted.

3 Q. Sure.

4 A. Instead of interrogatory. It's  
5 Roseglen Road Public School, and the system that is  
6 going in is a water loop heat pump with a gas boiler  
7 for make up air. It originally was an all electric  
8 plan. We convinced them to go with a ground source  
9 heat pump. However, once the excavation started for  
10 the ground source heat pump, it turned out that the  
11 soil ground problems would make a ground source heat  
12 pump risky at that point. The option then was chosen,  
13 the water loop heat pump with the gas make up boiler,  
14 which is a standard kind of approach that you would  
15 take to making something more efficient because what  
16 the alternative would be, would be electric air  
17 conditioning, gas boiler, and electric resistance  
18 heating on the perimeters of the building. So, in this  
19 case the efficiencies are still there. Actually 51 of  
20 over 900 cases that we have are water loop heat pumps  
21 with gas or propane backup. There is no way in the  
22 world is this project is what I would call fuel  
23 switching.

24 Q. Thank you. Thank you for looking  
25 that up.

1 To go back to the question we were  
2 discussing before the break, this net revenue impact --  
3 I'm not sure, who is it that is most familiar with that  
4 calculation? Is there anybody in particular?

5 A. Which calculation exactly, Mr. Mark?

6 Q. This \$185 million net benefit that is  
7 referenced so often.

8 A. That is the number I have been  
9 throwing around, so I guess you can ask me the  
10 question.

11 Q. I'll stay with you, Ms. Fraser. That  
12 comes from the distributor RIM test which is one of the  
13 set of, the test that you run that are within the DS  
14 Strategist program, isn't it?

15 A. That's correct. That number comes  
16 from adding up all the approved programs that are in  
17 the PCRD.

18 Q. In the data for that program amongst  
19 the costs that you assess the utilities occur, as I  
20 understand it, do not include -- let me start it this  
21 way. They will generally include the direct outlays  
22 that the utility incurs in connection with the  
23 implementation of the program, is that right? That is  
24 typically what we are talking of?

25 A. Yes, distributor program costs.

1 Q. And for most programs those costs are  
2 zero, is that fair?

3 A. I would have to look at the  
4 individual ones. Certainly in the case of the water  
5 heater tune-up program, insofar as those costs are all  
6 covered by Ontario Hydro they're zero.

7 Q. But if you have a program that is  
8 going into a municipal area, and even though the  
9 municipal utility is aware of it, is involved with it,  
10 deals with customers on it, unless they shell out a  
11 piece of goods or an amount of money or incur a cost in  
12 an installation, it's only those types of costs that  
13 you record here?

14 A. They are program costs. That's  
15 right. We don't include customer service costs.  
16 [3:49 p.m.]

17 Q. Right. And when Ontario Hydro  
18 calculates the costs that it includes in these analyses  
19 when it assesses its utility costs for the purpose of  
20 doing the total customer cost test or the Hydro utility  
21 impact test, it includes its general program and  
22 research and similar soft costs associated with the  
23 demand management effort?

24 A. In the overall screening of  
25 potential, there is a set sum that is used. We have



1       talked about that. It is the \$350 a kilowatt figure  
2       with the exception, I think, of some residential  
3       programs.

4                   Q. So you recognize --

5                   A. That is in the total customer cost  
6       test however.

7                   Q. Yes.

8                   A. At the program specific level, we are  
9       dealing with the incremental program costs relative to  
10      that particular program. It may not include the  
11      general research costs or those sorts of things.

12                  Q. But when you determine the rate  
13      impact when you do the rate impact measurement test at  
14      the Hydro level, you do include that per kilowatt  
15      charge for these general expenses?

16                  A. No. When we are doing the program  
17      design runs of DS strategist, we only use costs that  
18      are specific and incremental to the program. That  
19      ballpark number is used at the potential level.

20                  Q. But in any event, certainly in the  
21      avoided cost analysis, when you do the total customer  
22      cost test, you don't include in that any amount to  
23      allow for the same types of general energy management  
24      program costs that are incurred at the utility level?  
25      In fact, as I understand it, you --

1                   A. That's correct. If, for instance,  
2       back to the water heater tune-up program, the costs of  
3       that program in the total customer cost test would be  
4       the total cost irrespective of who spent them.

5                   So, the fact that there was a transfer of  
6       money from Ontario Hydro to a municipal utility and  
7       then to whatever general revenue fund, that is  
8       transparent at that point.

9                   Q. But, as I understand it, Ms. Fraser,  
10      though, you haven't even attempted to quantify and  
11      include in your total customer cost the energy  
12      management sort of general program or administration  
13      costs that the municipal utilities are incurring?

14                  A. Not the general ones, no.

15                  Q. And you will agree with me, as I  
16      think you have discussed already, as you move ahead in  
17      this program, it is your hope and expectation that the  
18      municipal utilities will staff themselves and equip  
19      themselves to generally be able to deal with demand  
20      management more than on just a specific program by  
21      specific program basis?

22                  A. Yes, and that is why we want to get  
23      those negotiations finished so that we can cover those  
24      costs on a more general basis as opposed to negotiating  
25      one by one.

1 Q. When you tell us about the \$185  
2 million net benefit, you haven't recognized any  
3 offsetting costs to the municipal utilities that don't  
4 result from these direct type of costs that we have  
5 talked about which you recognize?

6 A. That is true. Those would be  
7 traditional customer service costs.

8 Q. Well, if in support of the energy  
9 management initiative utilities go out and hire energy  
10 management personnel, that is certainly an increased  
11 cost they are bearing so that they can help you with  
12 these programs, correct?

13 A. Yes.

14 Q. All right.

15 A. And those are the kind of costs I  
16 expect that we would be able to cover once we got these  
17 negotiations done.

18 Q. All right. But as it presently  
19 stands, the way you have calculated your \$185 million,  
20 those costs aren't reflected?

21 A. Correct.

22 Q. All right. Maybe either Mr. Burke or  
23 Mr. Harper can help me with this, but assume with me,  
24 if you would, that each utility in the province hired  
25 one energy management resource person and we have 312

1 utilities today. It changes from day-to-day. That is  
2 my information anyway, but let's take 312. And assume  
3 they each hire one and the salary and the payroll  
4 burden and the overhead cost associated with that  
5 person is \$100,000 a year.

6 Can you tell me if we look out over  
7 twenty years, and do a net present value of the cost of  
8 those 312 people using a 5 per cent discount rate?  
9 Give me even a ballpark idea?

10 MR. SHALABY: A. Roughly 300 million?

11 Q. That's right. And the \$185 million  
12 net present value is also calculated on a twenty year  
13 net present value basis?

14 MS. FRASER: A. No. It is dependent on  
15 the program.

16 Q. All right. On average, it would be  
17 what?

18 A. Sometimes it is three years. It  
19 depends what the program is.

20 I would point out that some of these  
21 programs in terms of the net present value, it is in  
22 life of the equipment. The duration of most of these  
23 programs in here are between six weeks long and five  
24 years.

25 Q. No, no. But when you do your net

1 present value calculations on your total customer cost  
2 test in your program design, you look at the time over  
3 which you will get savings to your system, which is  
4 frequently --

5 A. That is for the equipment, that's  
6 right.

7 Q. That's right, for your equipment.

8 A. But the costs of achieving those  
9 savings are based on programs that will be anywhere, as  
10 I say, from six weeks to -- I think the longest one  
11 that is in here is five years.

12 Q. But the revenue impacts we have  
13 talked about which contribute so much to the \$185  
14 million, those occur over that longer term of the  
15 equipment?

16 A. The life of the product, correct.

17 MR. HARPER: A. Excuse me Mr. Mark,  
18 maybe just to follow up on your calculation. I think  
19 while Ms. Fraser and Mr. MacLellan may agree it would  
20 be wonderful if all 314 utilities hired an energy  
21 management person. I think given the range of size of  
22 the utilities that we have, some down to as few as 100  
23 customers, but I think probably in all practical terms,  
24 you wouldn't expect it out of, say, more than the  
25 largest 40 or largest 50 utilities in the province.



1 Q. No. I should have mentioned this  
2 perhaps, Mr. Harper. I wanted to take that as an  
3 average, if you assume that a utility like the City of  
4 Toronto may engage several and a utility like Applehill  
5 may engage none.

6 A. Yes.

7 Q. But it is not an unreasonable number,  
8 is it, Ms. Fraser, for the type of infrastructure you  
9 would hope to put into this province?

10 MS. FRASER: A. That would probably be  
11 about equal to our direct field staff.

12 Q. It is clear that if you were the  
13 distributor as well as the generator and you had those  
14 number of field staff, their costs would be included in  
15 and would increase this \$350 per kilowatt number that  
16 you ascribe to all your programs?

17 A. I believe the \$350 a kilowatt  
18 ballpark was sort of neutral as to who the delivery  
19 agents were.

20 Q. No. But if you recognized --

21 A. You mean, if the municipal utilities  
22 don't hire 312 more people, then we will have to?

23 Q. Well, that's right. If you hired  
24 them, they would be recognized. As it stands now, if  
25 the utility hires them and they are general energy

1 management service costs and there is not a specific  
2 program outlay, you don't recognize them in your TCC?

3 A. At the program level we don't. And  
4 what I am saying is that those are the costs that we  
5 would then -- again, I don't want to prejudge the  
6 negotiation, but those are the sorts of things that we  
7 would be covering, assuming that those people deliver  
8 megawatt savings. I wouldn't want to tie the payment  
9 of some of those things to actual achievements.

10 Q. And indeed, that is one of the types  
11 of proposals that the municipal utilities are  
12 advancing, is it not, Ms. Fraser? They are interested  
13 in being paid on a performance basis so we can get away  
14 from these notions of trying to track the cost  
15 directly?

16 A. I understand that is one of the  
17 suggestions that was put forward in February. I  
18 haven't been privy to any of the discussions since.

19 Q. Just a few additional items. In the  
20 new legislation which was recently tabled, which I have  
21 included at the very end of Exhibit 314, Mr. Wilson, I  
22 am sure you will be familiar if you look at page 108 of  
23 the handout at the very bottom. You will see the  
24 amendment 95A and it reads:

25 The cost of an energy conservation

1 program to a municipal corporation or  
2 commission may be treated by it in its  
3 discretion as a current operating expense  
4 or as a capital expenditure.

5 You are familiar with that provision, Mr.

6 Wilson?

7 MR. WILSON: A. Yes.

8 Q. All right. Did Ontario Hydro consult  
9 with the government at all in the whatever discussions  
10 there were that lead up to this amendment being put  
11 forward?

12 A. I don't know.

13 Q. Certainly nobody in the energy  
14 management branch was, I take it, that you are aware  
15 of?

16 A. I couldn't say that either.

17 Q. Do you have any information as to how  
18 it is, as the government said at the time, this is  
19 going to impact on the ability of the municipal  
20 utilities to implement programs?

21 A. From discussions that I was involved  
22 in, there was a perception in the Ministry of Energy  
23 that an obligation under the Act to expense demand  
24 management costs was a obstacle for municipal utility  
25 commissions to spend their resources on demand

1 management programs.

2 Q. All right. Which obligation is this  
3 to expense?

4 A. If they were to provide customer  
5 service resources and advertising expenses and so on in  
6 support of demand management or their own programs, the  
7 current legislation, I understand, requires them to  
8 charge the current costs of any of these expenditures.

9 People in the Ministry of Energy were  
10 concerned that this was going to be an obstacle and  
11 this is a discussion that I was involved in I think  
12 last in February, so this is four months or so before  
13 the Act was tabled in the legislature.

14 Q. Clearly, as does Ontario Hydro  
15 presently, the costs which are program specific which  
16 go to incentives or development or implementation of a  
17 particular program can be capitalized without any  
18 requirement for legislative authority?

19 MR. HARPER: A. I think that was a  
20 specific problem. I think the way the current Power  
21 Corporation Act is crafted, there is a specific  
22 requirement in there for municipal utilities spending  
23 money on conservation, it had to be expensed.

24 So, there was not that same leeway as  
25 what has been discussed earlier with Mr. Wilson in the

1 sense of capitalizing, having the ability to capitalize  
2 those expenses when it is clear that there is a  
3 long-term benefit to them. I think this change in the  
4 Act is just correcting that.

5 Q. I am sorry, you are telling me that  
6 in the Power Corporation Act, even expenses which under  
7 general accounting principles could be capitalized, the  
8 Power Corporation Act makes the utilities expense them?

9 A. The impression was that is the way  
10 the Act could have been read.

11 Q. Are you familiar with the particular  
12 sections or provisions, Mr. Harper? I am not.

13 A. I would have to look it up, but I can  
14 remember reading it is only about two or three lines in  
15 the Act actually.

16 Q. In any event, Mr. Harper, the money  
17 that we are talking about here is still going to have  
18 to come from some source and so when you capitalize it,  
19 you borrow it, correct?

20 A. You don't necessarily have to borrow  
21 it to capitalize it. It could come from revenues. It  
22 is really a matter of how you are going to eventually  
23 recover that money.

24 Q. Well, if you don't expense something  
25 but you capitalize it, that means you only collect the



1 charge from the customers for that over time; is that  
2 not correct? That is the way capitalization works.  
3 [3:05 p.m.]

4 A. Not necessarily, because as well as  
5 the amortization revenue that you get from capitalizing  
6 something, utilities also have an allowance in their  
7 rates for net income. So, you could essentially  
8 finance the whole thing through your net income.

9 Q. In a particular year?

10 A. In a particular year.

11 Q. If you could finance the whole thing  
12 in the year of expense through net income, then the  
13 ability to capitalize it does nothing for you?

14 A. I guess the issue is, to some extent,  
15 what would you rather have done with those funds or  
16 could you have done something else with those funds,  
17 and I think that was the --

18 Q. And if you capitalize, you agree with  
19 me, Mr. Harper, you have to borrow the money?

20 A. No, I don't necessarily think so.

21 Q. Where else do you get it?

22 A. You can get it from your customers  
23 through rates.

24 Q. In one year?

25 A. In one year, yes.

1 Q. If you are spending the money in one  
2 year and you are recovering it all through rates in the  
3 same year, you don't have to capitalize anything; is  
4 that right?

5 A. It's really a matter of how the  
6 accountants treat it in the context of it showing up on  
7 the books. You could finance it through net income, it  
8 would become an asset on your books, and then you would  
9 depreciate it or amortize it over a five-year period if  
10 that was the asset, if that was the assumed life of  
11 that particular benefit.

12 Q. But you wouldn't collect it all in  
13 the first year and then amortize it and collect it  
14 again in rates as you amortize it.

15 A. It's a matter of where you are  
16 getting the source of money from to pay for it.

17 THE CHAIRMAN: What has all this got to  
18 do with demand management?

19 MR. MARK: What it has to do, Mr.  
20 Chairman, it seems to have been presumed somewhere that  
21 this capitalization -- this provision was going to  
22 somehow increase the participation of the municipal  
23 utilities. I am just trying to, as far as I am  
24 advised --

25 THE CHAIRMAN: This is legislation is

1 introduced by the provincial government for whatever  
2 reason they saw fit to do so.

3 I don't know how these panelists can help  
4 you about that. The legislation appears to speak for  
5 itself.

6 MR. MARK: Perhaps that is what I was  
7 trying to find out, whether they could, Mr. Chairman.  
8 I guess the answer is...

9 Q. Can anybody be of more assistance,  
10 how it might help?

11 No. All right, let's move on.

12 MS. FRASER: A. I think Ms. Carter spoke  
13 to that when she presented the bill, June 5th.

14 Q. And beyond what she had to say, you  
15 are not aware of --

16 A. It was a surprise to me when I saw  
17 the bill.

18 MR. B. CAMPBELL: Mr. Chairman, just for  
19 the sake of completeness there. The section that was  
20 amended was Section 95A, which deems that municipal or  
21 municipal commissions spending monies on an energy  
22 conservation, that that shall be deemed to be a current  
23 operating expense of the municipal corporation or  
24 municipal commission. Section 95(A), that's the  
25 section that's been amended to permit capitalization.

1                   Now, I can't help but say, now I know why  
2       Mr. Mark spent so much time cross-examining on the  
3       accounting treatment of the uranium contracts. Now we  
4       can help you on this one.

5                   I'm sorry, that's at the OEB where we  
6       spent considerable other time together.

7                   MR. MARK: Q. Mr. Harper, the  
8       time-of-use meter that was recently approved by  
9       Consumer and Corporate Affairs Canada, I think you have  
10      had some discussion about that previously.

11                  MR. HARPER: A. Yes.

12                  Q. Would you agree with me that the  
13      approval of that meter was obtained through the efforts  
14      of Toronto Hydro?

15                  A. It was not only a Toronto Hydro  
16      thing. North York Hydro was also involved in the  
17      process.

18                  Q. But those utilities were the ones  
19      that pressed for and obtained the approval of that  
20      meter for residential metering?

21                  A. Yes.

22                  MR. MARK: Thank you, Panel.

23                  Thank you, Mr. Chairman. Those are my  
24      questions.

25                  THE CHAIRMAN: Mr. Grenville-Wood, are

1       you ready to proceed?

2                   MR. GRENVILLE-WOOD: In about five  
3 minutes, Mr. Chairman. I wonder if you could give me  
4 just five minutes, I am just getting a couple of papers  
5 photocopied.

6                   THE CHAIRMAN: Yes. We have a couple of  
7 matters that we want to take up with the panel in the  
8 meantime, so we could use that time to do that.  
9 ---Off the record discussion.

10                  DR. CONNELL: Perhaps, Mr. Chairman, if I  
11 could address a point to Mr. Campbell first rather than  
12 the panel. This concerns your announcement yesterday,  
13 Mr. Campbell, just seeking some clarification and some  
14 understanding of our role. Perhaps I could refer you  
15 to the DSP, Chapter 12, page 8 and 9, which is the  
16 overview of the hydraulic plan. Have you found that?

17                  MR. B. CAMPBELL: Yes, this is page 12-8  
18 and 12-9.

19                  DR. CONNELL: Yes.

20                  MR. B. CAMPBELL: Yes.

21                  DR. CONNELL: The total program is shown  
22 as 2,935 megawatts, and then on page --

23                  MR. B. CAMPBELL: Just a moment. I'm  
24 sorry.

25                  I am going to, at the fear of being



1 viewed as a obstreperous in this matter, I am going to  
2 respond to you being fairly careful about the language,  
3 because there is a hydraulic plan, there is a program  
4 which is included in the undertaking, and those are two  
5 different things. The program is a subset of the plan  
6 and that language was worked out quite carefully taking  
7 into account the need for some distinction between  
8 overall plan and the program which is the part that's  
9 encompassed by the approvals requested.

10 DR. CONNELL: I understand that. I will  
11 try to stick to the language and the numbers shown in  
12 the DSP and not refer to updates.

13 The total program is cited there as  
14 2,935.

15 MR. B. CAMPBELL: Yes.

16 DR. CONNELL: Under the approvals  
17 required on page 19-2 in the undertaking were given  
18 1,993 megawatts.

19 MR. B. CAMPBELL: Yes.

20 DR. CONNELL: The sites named by you  
21 yesterday in the, shall I call it, the revised  
22 hydraulic plan?

23 MR. B. CAMPBELL: It's the plan that is  
24 being used as the base case, I would call it the base  
25 case hydraulic plan on the reintegration of the plans.

1 I have got to find a snappier way to say  
2 that, but that is what I am speaking of.

3 DR. CONNELL: If I got these down  
4 correctly, they were Mattagami, Little Jackfish,  
5 Niagara, Ragged Chute, Patten Post.

6 MR. B. CAMPBELL: Yes.

7 DR. CONNELL: Using the numbers from the  
8 DSP again, those add up to 1,409 megawatts.

9 MR. B. CAMPBELL: Yes.

10 DR. CONNELL: Subject to check.

11 You cited particularly then the Abitibi  
12 Group, that is Abitibi Canyon, Otter Rapids, Nine Mile  
13 Rapids, you gave us 900, the DSP shows 932 for that  
14 group, near enough.

15 And the other Moose River sites which  
16 would be Renison, Blacksmith Rapids, Sand Rapids, Allan  
17 Rapids, adding up to 537, for a total of 1,469. Those  
18 then would not be under consideration by us according  
19 to your report of yesterday.

20 MR. B. CAMPBELL: They will not be  
21 included in the base case analysis.

22 What I also indicated to you is that we  
23 would show the effect should those facilities be  
24 considered. The reason for that is because of  
25 course -- there are really two reasons. One is that it

1 is conceivable that an appropriate planning process can  
2 be put in place with the agreement of the Aboriginal  
3 groups affected, and at some point in future some part  
4 of that capacity might be considered, and that may be a  
5 matter that you would want to consider.

6 Secondly, having had it originally in the  
7 plan, it would make comparisons simpler, and there may  
8 be parties to this hearing, although I am not aware of  
9 any as yet, who suggest to you that some of that  
10 capacity should be counted in the planning and we want  
11 to be able to have in hand the effect on that on the  
12 reintegrated plan basis.

13 DR. CONNELL: I then draw from what you  
14 said two points: The first is, if I add together the  
15 two numbers, the 1,409, the sites that you named, and  
16 the 1,469, the sites that you explicitly excluded, it  
17 comes to 2,878, very close to the original concept. I  
18 think the only things not cited were Cypress Falls,  
19 Lake Gibson and Big Chute. But if I can speculate  
20 then, if the Board were, in fact, to approve, not only  
21 the undertaking but the total hydraulic concept, you  
22 would want us to be in a position of being able to  
23 evaluate that total 2,878 megawatts in the context of  
24 the overview of the plan.

25 You would also want us to have some

1 understanding not of the specific sites, but of the  
2 general nature of the sites that have been deferred,  
3 particularly the Abitibi and Moose sites.

4 MR. B. CAMPBELL: Yes. And I wouldn't  
5 eliminate Cypress Falls from that.

6 I think the list that I gave was not a  
7 list of what was eliminated but a list of what was in.

8 The four sites that make up the Mattagami  
9 Complex are the ones that I named. Everything else in  
10 the basin for planning purposes for the base case are  
11 not being included in the planning because of the  
12 uncertainty that is associated with reaching an  
13 agreement on a planning process with the Aboriginal  
14 groups affected.

15 So Cypress I wouldn't treat it any  
16 differently really, and with Lake Gibson and Big Chute  
17 again, we will be assuming that they are in for  
18 planning purposes. They were removed from approvals, I  
19 believe, at the time the review was being prepared.  
20 They are a very small amount but I don't think that you  
21 should be assuming that they have just disappeared for  
22 planning purposes. They are being assumed for planning  
23 purposes.

24 I believe what I said was that in  
25 addition to those two, the specific sites that would be

1 considered were Little Jackfish, Mattagami, Niagara, et  
2 cetera.

3 DR. CONNELL: Right. Now, insofar then  
4 as perhaps some of the Mississauga -- sorry, the  
5 Abitibi or Moose sites are generically different from  
6 other sites in the plan, you would be expecting to call  
7 evidence that would illuminate those differences for  
8 us, so that we would have some appreciation of the  
9 consequences of hydraulic development.

10 MR. B. CAMPBELL: I think the witnesses  
11 will be able to speak to the nature of those sites, the  
12 preliminary estimates of flooding, some of those  
13 matters. We do not, and nor have we ever pretended to  
14 have as detailed information about those sites which  
15 are, shall I say, downstream from Abitibi and Otter  
16 Rapids.

17 I think, though, what you have called a  
18 generic or a general understanding of where and the  
19 characteristics of the hydraulic potential in the  
20 province is pertinent, because the Board will have to  
21 be satisfied that in looking at the hydraulic resource  
22 generally in the province, that through a reasonable  
23 process Ontario Hydro has arrived at an appropriate  
24 amount to include in its long-term plan.

25 As I have said before you many times,



1 Ontario Hydro does not believe that even that planning  
2 look at Ontario's hydraulic resource can be made apart  
3 entirely from any understanding of where those  
4 hydraulic heads exist and the nature of that hydraulic  
5 head as it exists in the province. It's no point  
6 saying we have got a wonderful hydraulic resource and  
7 we want you to include for planning purposes 3,000  
8 megawatts but we don't know where it is.

9 [3:19 p.m.]

10 I have gone through a specific propose to  
11 try and take the overall hydraulic resource and  
12 identify an amount which was appropriate to include in  
13 planning.

14 And for reasons that are really not  
15 related -- well, that is not quite right. For reasons  
16 that I outlined to you yesterday morning, a certain  
17 amount of that resource that had originally been  
18 included in the planning is being removed for purposes  
19 of reintegration of the plan, that exercise that we are  
20 going through this fall. And it will not go back in  
21 any of Ontario Hydro's planning until such time as an  
22 acceptable process is worked out with the Aboriginal  
23 groups effected for the -- well, just the planning  
24 process has to be developed with those groups.

25 DR. CONNELL: So, you have envisaged then

1 that should this Board have positive findings on those  
2 matters, then the subsequent steps that would follow  
3 would be the agreement that you have just cited and the  
4 relevant site-specific hearings?

5 MR. B. CAMPBELL: I am not in any  
6 position to speculate about what the subsequent steps  
7 might look like with respect to those, what I will  
8 call, the post-Mattagami Complex sites on the Moose.

9 It is that very question that Hydro wants  
10 to discuss with the Aboriginal groups effected. And  
11 exactly what form, shape, range of issues and so on  
12 would be involved in that is a matter that is going to  
13 have to be discussed with those groups and agreement  
14 reached or that capacity will not be relied on for  
15 Hydro's long-term planning.

16 THE CHAIRMAN: Excuse me, let me just  
17 make sure I understand. Let us assume two scenarios:  
18 Scenario 1, that at the end of all the evidence in this  
19 hearing, no agreement has been reached about those  
20 particular sites.

21 To what extent, if any, do we then  
22 consider the potential from those sites in making the  
23 assessments we are being asked to make?

24 MR. B. CAMPBELL: I can only speak to you  
25 as to what Ontario Hydro's position would be in that

1       eventuality. And what Ontario Hydro's position would  
2       be in that situation was that - unless there was some  
3       unusual intermediate situation which I can't envisage -  
4       if it was perfectly clear that it was not going to be  
5       possible to reach any agreement with the Aboriginal  
6       groups effected, on those post-Mattagami Moose River  
7       sites --

8                   THE CHAIRMAN: I am not going to go that  
9       far. I am going to say that the hearing ends before  
10      that agreement is made.

11                  MR. B. CAMPBELL: I don't think I can  
12      make a general submission on that. I could only make  
13      submissions in light of the state of those discussions  
14      at that time.

15                  THE CHAIRMAN: All right. Then I will  
16      give you the second scenario to point out the problem.

17                  Supposing an agreement is made before the  
18      hearing ends, then do we go back to square one and  
19      include it as if it were part of the hydraulic plan, or  
20      what do we do?

21                  MR. B. CAMPBELL: If an agreement was  
22      reached for a planning process for all of the balance  
23      of the sites - and this is an entirely hypothetical -  
24      for all of the balance of the sites and a reasonable  
25      timetable could be attached to that planning process

1       whereby it was contemplated that development of certain  
2       capacities would take place at certain dates, then you  
3       might well find me standing here saying that, in light  
4       of that - and I guess I would be standing here with  
5       some of the other intervenors in this hearing - saying  
6       that it is reasonable, therefore, on that basis to  
7       reflect that capacity in Hydro's long-term planning and  
8       to reflect the smaller portion of it in the approvals  
9       requested. It is entirely possible.

10               THE CHAIRMAN: You would consider that  
11       the requirement and rationale for it?

12               MR. B. CAMPBELL: For that portion of it  
13       for which approvals have been requested. The only  
14       portion that falls into that category with respect to  
15       the specific approvals is the Abitibi Complex. It is  
16       not the balance.

17               MS. PATTERSON: So, Mr. Campbell, you  
18       said that you would show the effect should those  
19       facilities be considered and I am not sure what you  
20       mean by that and how that affects the groups who  
21       otherwise might have taken some comfort from your  
22       announcement yesterday.

23               MR. B. CAMPBELL: All we are trying to do  
24       is basically show, because we expect to be asked, what  
25       if you hadn't taken this out? What if some other

1        intervenor in this hearing suggests that this  
2        development should take place, or, to take the  
3        Chairman's question, what if agreement is reached  
4        before the end of the hearing?

5                    Then we would say, well, in that event,  
6        here is what the plan in its current state would look  
7        like if that agreement was reached and a timetable was  
8        attached. Given that, here is how that would affect  
9        the smaller set of approvals that we are looking for  
10       because we are not, of course, looking for approvals  
11       for the whole length of the plan.

12                   THE CHAIRMAN: Thank you, Mr. Campbell.

13                   Mr. Grenville-Wood?

14                   MR. GRENVILLE-WOOD: Mr. Chairman, a  
15       couple of points for the members of the panel: We are  
16       about to take a break, I presume, very shortly so I  
17       don't know if it is worth starting right now.

18                   The second point is, I have at least  
19       three hours, I suspect. I understand from Mrs.  
20       Morrison that you have promised the day, tomorrow to  
21       another intervenor, the whole day.

22                   I have some difficulty with starting my  
23       cross-examination and having somebody else start in the  
24       middle and then coming back afterwards to finish.

25                   If it were possible, and I am asking just



1 for your indication, to have somebody else fill in the  
2 rest of today, I would be prepared to come back on  
3 another day and fill in after Mr. Rosenberg. It is  
4 entirely up to you. I am ready to go now, but I do  
5 find it a little difficult to --

6 THE CHAIRMAN: I think you are going back  
7 to Ottawa, I assume, if this is finished, I take it?

8 MR. GRENVILLE-WOOD: The nation's capital  
9 awaits me, Mr. Chairman.

10 THE CHAIRMAN: I think that what we would  
11 like to do, although three hours wasn't quite what I  
12 had in mind, I think you are ready to go and I think  
13 you should go and do your cross-examination and we are  
14 prepared to stay until you have finished it.

15 So that solves your problem. It may  
16 create some problems for others, but that solves your  
17 problem. So, we will take a 15-minute break right now.

18 MR. GRENVILLE-WOOD: All right.

19 ---Recess at 3:27 p.m.

20 ---On resuming at 3:41 p.m.

21 THE REGISTRAR: Please come to order.  
22 This hearing is again in session. Please be seated.

23 MR. GRENVILLE-WOOD: Mr. Chairman, I  
24 think in order to keep things short, some of the panel  
25 have decided not to come.

1 MS. FRASER: Just the long-winded ones.

2 THE CHAIRMAN: If you don't make it by  
3 five, I am told we have to stop at five. I should have  
4 learned years ago that you should never change the  
5 format because it never works. So, we will stop at  
6 five. If you haven't finished, we will continue again  
7 tomorrow morning, but I won't break your  
8 cross-examination.

9 MR. GRENVILLE-WOOD: Thank you, Mr.  
10 Chairman. I am grateful for that.

11 THE CHAIRMAN: We still need two  
12 panelists. We are back a little early, I think, now  
13 that I look at the clock.

14 MR. B. CAMPBELL: I don't know what we  
15 are missing back there, but ... (laughter)

16 MS. FRASER: I think they are out getting  
17 some sun.

18 MR. B. CAMPBELL: If they are, they are  
19 fired.

20 MR. MacLELLAN: My apologies.

21 THE CHAIRMAN: No need to apologize.  
22 We are back early.

23 MR. GRENVILLE-WOOD: Mr. Chairman, first  
24 of all, I would like to introduce Mr. Kokko, K-O-K-K-O,  
25 who is from Enermodal Engineering and is my advisor for

1 today. I don't think I need to introduce Mr. Passmore  
2 who is well known to all.

3 I understand that the prefile that we  
4 have filed has been distributed to the panel and I  
5 think to the hearing panel. And perhaps it ought to be  
6 given an exhibit number at this point.

7 THE CHAIRMAN: Yes.

8 THE REGISTRAR: That will be No. 315, Mr.  
9 Chairman.

10 ---EXHIBIT NO. 315: Document precis entitled: "The  
11 Evolution of Window Technology."

12 CROSS-EXAMINATION BY MR. GRENVILLE-WOOD:

13 Q. My first question is addressed to Mr.  
14 Burke. In direct examination, Mr. Burke, you said at  
15 page 8501 of Volume 47 the following, and I will cite  
16 it for you, so there is no need necessarily to look at  
17 the transcript:

18 "There is also about 17 megawatts  
19 associated with efficiency improvements  
20 in the water heaters themselves. And  
21 those items on the overhead" - and you  
22 were referring to an overhead you had at the time -  
23 "are tank wrap and heat wrap measures,  
24 and they add, as I said, about 75  
25 megawatts of savings.

1 And finally, reducing the amount of  
2 hot water required for showers through  
3 low flow shower heads contributes 120  
4 megawatts or so, as indicated in that  
5 overhead."

6 Now, knowing who I represent, I am sure  
7 you know what is coming, but the question that comes to  
8 my and I wanted to pose to you is: Nowhere in that  
9 comment about hot water and savings that can flow from  
10 improvements, efficiency improvements, no mention is  
11 made of solar-heated hot water.

12 The question is, why was that not  
13 mentioned?

14 MR. BURKE: A. It was my understanding  
15 that solar heating for hot water purposes was not  
16 economic and we did not include an estimate for it  
17 because of that.

18 THE CHAIRMAN: Not economic in what  
19 sense?

20 MR. BURKE: Wouldn't pass the total  
21 customer cost test.

22 THE CHAIRMAN: Wouldn't pass the TCC  
23 test, is that what you mean?

24 MR. BURKE: Yes.

25 MR. GRENVILLE-WOOD: Q. So, according to

1       you, it won't pass the total customer cost test.

2                   I understood from testimony that has been  
3       given earlier that the contribution that solar  
4       technologies, generally speaking, would make to the  
5       demand/supply picture, the reason why you eliminated  
6       solar from the 1990 load forecast was because the  
7       contribution Hydro estimated was negligible, I think  
8       was the word you used.

9                   Did that kind of analysis enter into your  
10      response to that question or was it purely an economic  
11      test?

12                  MR. BURKE: A. Well, in the basic load  
13      forecasts, what is considered is whether the technology  
14      will penetrate the market of its own accord without any  
15      intervention to, in some sense, make it more attractive  
16      to the customers. Customers would take it up facing  
17      the full costs of the technology.

18                  So, in that sense, to have excluded it  
19      from the basic load forecast would not in itself have  
20      been an argument for why it would not be included as a  
21      potential candidate for a demand management program.

22                  In fact, it is just in those  
23      circumstances where we would consider looking at  
24      something that does not penetrate the market naturally;  
25      we would ask, is it economic from the total customer



1 cost perspective and then, should we find ways of  
2 promoting it through programs?

3 And what I am saying is, that in looking  
4 at the total customer cost test, it is my  
5 understanding - I didn't do the analysis myself - but  
6 it is my understanding that solar hot water heating was  
7 not economic.

8 Q. Now, you say you didn't do the test  
9 itself, but do you agree --

10 A. No, no. I didn't do the analysis  
11 myself. It is my understanding that it would not pass  
12 that test.

13 Q. All right. Now, do you have the  
14 analysis? Is there an analysis on solar hot water  
15 heating?

16 MR. SHALABY: A. We have done a  
17 preliminary or -- every now and then we look at solar  
18 water heaters. We compare them to the costs of heating  
19 water by electricity and there is such a recent  
20 assessment that we have conducted this year.

21 Q. You have done some this year?

22 A. Yes.

23 Q. Could I have an undertaking to  
24 produce those documents for our purposes?

25 THE CHAIRMAN: Is that all right?

1 MR. SHALABY: It is okay, yes.

2 THE CHAIRMAN: 267 what?

3 THE REGISTRAR: .23.

4 ---UNDERTAKING NO. 267.23: Ontario Hydro undertakes to  
5 produce the analysis on solar hot water  
heating.

6 MR. GRENVILLE-WOOD: Q. Now, you say  
7 this analysis was with respect to solar water heaters  
8 done -- what date are we referring to precisely? I  
9 mean, you don't have to give me an exact date.  
10 [3:50 p.m.]

11 MR. SHALABY: A. June 1991.

12 Q. June 1991. Do you have any analyses  
13 from previous years?

14 A. Not handy, no.

15 Q. Are they available? I don't mean  
16 right here. Are they available at Hydro? Were tests  
17 done or analyses done of solar water heaters in  
18 previous years?

19 A. Hydro had an extensive solar water  
20 heater program in the late 70s, as far as I remember.  
21 We tested, my memory tells me, about 14 or 12 solar  
22 water heaters and ran a test program for several years.  
23 So, I presume we have an evaluation of the performance  
24 of the those and the costs of those. But I suspect  
25 that data is less and less relevant as the technology

1 improved and as the performance improved over the  
2 years.

3 Q. Am I understanding you correctly to  
4 say then there was a test program, to the best of your  
5 knowledge, in the late 70s, which may have been  
6 evaluated subsequently, but nothing other than that  
7 apart from the June 1991 test?

8 A. Nothing formal. Again, we spoke of  
9 formally documented reports. But we do attend  
10 conferences and we talk to others that have had water  
11 heater programs and know the results of their programs,  
12 and that gives us an idea on an ongoing basis of the  
13 economics of solar water heaters.

14 Q. I am sure you don't make decisions on  
15 the basis of ideas. Ideas presumably feed policy  
16 discussions and policy discussions sometimes lead to a  
17 decision-making process.

18 What I am understanding you to say is in  
19 June 1991 you had an analysis made, but you are telling  
20 me that prior to that the only other analysis stems  
21 from the late 70s. I am just trying to understand if  
22 that is correct.

23 A. There is awareness of the economics  
24 of solar water heaters on continuing intervals.

25 What I am telling you is that we don't

1 have reports produced on continuing intervals, or if  
2 there are I am not aware of it. There may well be  
3 elsewhere in the company, I am not aware of it.

4 Q. Can I ask you to undertake to examine  
5 the records and if you do find tests or analyses that  
6 relate to years prior to June 1991, to produce those?

7 A. That will take some work. If it's  
8 particularly significant in the assessment -- if we  
9 have a recent snapshot, our assessment of water heaters  
10 now, I expect that will give you what you need.

11 I can do that but it is just going to be  
12 time consuming.

13 Q. I think the point is, I wouldn't be  
14 asking the questions if I didn't think they were  
15 relevant, and the reason I am asking you

16 A. Is it commensurate with the effort,  
17 is maybe what I am asking.

18 THE CHAIRMAN: Excuse me, I wonder if you  
19 have got the 1991, had a look at it and perhaps you  
20 might then know whether you needed anymore historical  
21 information other than what might be contained in that  
22 report.

23 MR. GRENVILLE-WOOD: I am not sure that I  
24 would be completely satisfied with that, Mr. Chairman,  
25 the reason being, obviously the 1990 load forecast

1 eliminated solar contribution whatsoever. I have been  
2 trying to find out through various panels what  
3 information was available to feed that decision.

4 Now I am told the only analysis we have  
5 since the early 80s or late 70s was done a few months  
6 ago, and I presume probably done a few months ago as a  
7 result of some of the questions that have been raised  
8 in this hearing.

9 So, it seems to me, it's very important  
10 to know what happened in earlier years.

11 MR. SHALABY: I what am saying is we have  
12 experience that we get from other utilities. An  
13 example would be TVA, Tennessee Valley Authority, had a  
14 large solar water heater program and they discontinued  
15 it because it was not working out. We have results  
16 like that and it is in a climate that is sunnier than  
17 ours and has more solar insulation and doesn't need all  
18 the freeze protections that we need, and even there it  
19 didn't work out.

20 MR. GRENVILLE-WOOD: Q. That's the fine.  
21 If that's the information --

22 MR. SHALABY: A. This is the kind of  
23 data that we use to make up our minds as to whether  
24 technologies are or are not cost-effective in Ontario.

25 Q. With respect, Mr. Shalaby, I mean, I



1 know that an organization like Ontario Hydro would not  
2 make a decision based upon some anecdotal information  
3 obtained over the phone or by observance at a  
4 conference from TVA or anywhere else, without having  
5 some kind of documentation to apply that information to  
6 its own situation.

7 What I am asking is, is there any  
8 information within your shop or in some other place in  
9 Hydro -- I mean, I know it's a difficult task, the  
10 question of solar is not a major aspect of your  
11 operation, we know that. But surely if there are only  
12 a few people who have any interest in it, in any event  
13 within Hydro, surely they can be asked to produce what  
14 information is relevant to the question I am asking.

15 MR. BURKE: A. Let me just comment. You  
16 seem to be concerned about finding the basis for the  
17 1990 load forecast assumption of not including solar,  
18 and we discussed that at length in Panel 1. We made it  
19 clear that we did not have studies more recent than  
20 about 1983 which is a sort of a summary report of our  
21 own experience with the test demonstrations of the  
22 solar water heaters that Hydro installed in its  
23 research decision, and then we subsequently discussed  
24 in that cross-examination the trends and costs of the  
25 components and the elements of solar water heating and

1       our understanding of that, which was that it hadn't  
2       materially changed over the period '83 to '90, and that  
3       was the basis of our analysis, and there is no more  
4       that I am aware of than that.

5                   Q. Well, excuse me, again, with respect,  
6       Mr. Burke, I think your comment is valuable only, and I  
7       think it misinterprets what -- it may state clearly  
8       what your understanding was, it certainly doesn't state  
9       what our understanding is and it doesn't state clearly  
10      what I would presume that we will be presenting as  
11      evidence to indicate that there have been some  
12      technological advances, and that there are some issues  
13      that you have ignored.

14                   The point is, I want to know what your  
15      people have within your own process.

16                   MR. B. CAMPBELL: Mr. Chairman, I don't  
17      know whether we are into just semantic differences or  
18      not. We are prepared to produce the calculations that  
19      were done in June 1991 to review this question of how  
20      this technology measured up under the total customer  
21      cost test. It will show the assumptions that were made  
22      with respect to costs, et cetera.

23                   What my friend is assuming is in place,  
24      and I think the evidence of these witnesses is clear,  
25      is not readily available because that isn't the way

1 business is done, is that over the intervening years  
2 people at Hydro have kept an eye on this technology,  
3 they make judgments based on that information as to  
4 where to put their effort, and their effort has not  
5 been to publish regular reports on solar technology.

6 So yes, I think the evidence is clear,  
7 there is not something that can be specifically pointed  
8 to, but that does not mean that there isn't a body of  
9 information out there as Mr. Burke and Mr. Shalaby have  
10 said that people at Hydro have used to inform their  
11 judgment as to whether to put an effort into this  
12 technology.

13 Now, I think that's just exactly where we  
14 are. We are prepared to show the calculations, in my  
15 submission, those calculations are the relevant  
16 calculations for this purpose. I think if we were to  
17 be asked to go any farther, it would be simply this,  
18 which is to indicate the types of sources of  
19 information that are relied on in making the judgments.  
20 I think we would be prepared to have some look at that,  
21 but depending on how much was involved in compiling  
22 that, I think we are prepared to put forward some list  
23 of that type, and then if my friend has any difficulty  
24 with that, he could raise it again with the Board.

25 THE CHAIRMAN: A list of what type?

1 MR. B. CAMPBELL: Well, of the kinds of  
2 information, for instance, conference proceedings,  
3 information from TVA, those kinds of basic background  
4 material that people at Hydro in their day-to-day jobs  
5 use to inform their judgment. But as I said earlier  
6 today, not every phone call, not every line of  
7 communication, not ever concern is documented in neatly  
8 bound reports. That's just not the way the world  
9 operates.

10 MR. GRENVILLE-WOOD: Mr. Chairman, I  
11 think my question was very simple and it has been  
12 complicated out of all proportion.

13 All I was asking was, apart from 1991,  
14 were there any other reports which fed decision-making.  
15 Mr. Shalaby indicated there may be, he is not aware of  
16 any.

17 All I asked was, could we do a search? I  
18 am asking, there is not 500 million things at Hydro on  
19 solar technology quite clearly. So surely a small  
20 search could be done which would reveal whether there  
21 is any information or not. If there is no information,  
22 I would be happy with that answer. I will take it at  
23 it's face value.

24 THE CHAIRMAN: I think we will expand the  
25 undertaking to include any other reports of a similar

1 nature that have been prepared by Hydro since 1985.

2 Would that be suitable?

3 MR. GRENVILLE-WOOD: That would be  
4 satisfactory to me, Mr. Chairman.

5 THE CHAIRMAN: Yes. All right.

6 Is that a manageable undertaking?

7 MR. SHALABY: It is a manageable  
8 undertaking, yes.

9 THE CHAIRMAN: So that will part of  
10 267.23.

11 MR. SHALABY: But if I find something  
12 produced in 1984, I produce it?

13 MR. GRENVILLE-WOOD: Take your  
14 instructions from Mr. Campbell, Mr. Shalaby.

15 MR. B. CAMPBELL: That would be a  
16 refreshing change, Mr. Grenville-Wood. (laughter)

17 MR. GRENVILLE-WOOD: We will help when we  
18 have to.

19 Now, I am glad we don't have to go until  
20 7:00, Mr. Chairman.

21 THE CHAIRMAN: I was thinking the same  
22 thing.

23 MR. GRENVILLE-WOOD: Q. Anyway, my  
24 understanding is, and I think we have heard from this  
25 panel and others, that Ontario Hydro is seeing its



1 mission changing as it meets the needs of the Ontario  
2 population. I think you seem to be saying that the  
3 Hydro mission is now aimed at providing energy  
4 services, appropriate energy services to meet the needs  
5 of the residents of Ontario. I think that statement  
6 comes most explicitly at page 8390-8391 of Volume 47.

7 Just before I enter into the line of  
8 questioning, does anyone disagree with that statement  
9 that the mission of Ontario Hydro is changing from  
10 merely providing or meeting the electrical demands of  
11 the citizens of Ontario to, in fact, providing  
12 appropriate energy services? Is that a misstatement  
13 of.... I see people frowning, but I would like to know  
14 right now before I enter into the next stage of  
15 questioning.

16 MR. WILSON: A. I haven't turned up that  
17 reference. What I recall trying to communicate was  
18 that we see our job as trying to meet the electric  
19 service needs of the people of Ontario, and that isn't  
20 necessarily with more electricity. It's alternative  
21 fuels where that is economic, or with conservation and  
22 efficiency measures. So broadly speaking, I concur  
23 with your assessment.

24 Q. Would you also agree then that an  
25 enormous amount of primary energy is used for heating

1 water, buildings and other low temperature loads in the  
2 province. Now, I understand this to require about  
3 150,000 gigawatthours per year in residential and  
4 commercial water and space heating alone.

5 Now, would you agree that electricity and  
6 possibly natural gas are too valuable to be used for  
7 these low temperature demands or requirements?

8 MR. BURKE: A. Well, I have difficulty  
9 with the "too valuable". There are various ways of  
10 valuing things, and currently we tend to use either  
11 market prices or we look at avoided costs and marginal  
12 costs and so on. But I think your question is probably  
13 coming more from the realm of some sort of  
14 thermodynamic principles that it must be too valuable,  
15 and implicitly all the price relationships and costing  
16 relationships that we use to assess what is economic  
17 are wrong. Essentially what we have said earlier  
18 already is that, in our view, it doesn't pass the total  
19 customer cost test in that sense of valuing something,  
20 we wouldn't agree. There must be some other evaluation  
21 system that you are bringing to bear which says that we  
22 have done it incorrectly.

23 Q. I will give you an example, a  
24 specific example. You would agree that there are some  
25 low temperature loads, for example, heating water, you

1 don't need to raise the temperature of water at any  
2 time more than 60 degrees Celsius. It would be  
3 inefficient in most analysis, would it not, for you to  
4 use a generating capacity that heats water up to 1,000  
5 degrees, nor to meet that load requirement; is that  
6 something that you would agree with?

7 MR. B. CAMPBELL: Can I just clarify?  
8 Are we talking purely in terms of thermodynamic  
9 efficiency? Because economic efficiency is a  
10 completely different consideration and all of the other  
11 things, all the other matters that affect electricity  
12 decision-making, the efficiency of loads is a  
13 completely third and different question.

14 I think my sense is that this question is  
15 thermodynamic efficiency, but I think the witnesses are  
16 entitled to know if that's the efficiency you are  
17 referring to.

18 MR. GRENVILLE-WOOD: No, because the  
19 point I guess we are getting at, thermodynamic  
20 efficiency would indicate that you could have some  
21 processes that have a very high input and a very low  
22 output in terms of energy.

23 [4:04 p.m.]

24 So, if you apply a purely thermodynamic  
25 analysis, that would be one set of criteria that you

1 would use.

2 Q. But the point is, surely it is, even  
3 in economic terms, would you not agree, that it would  
4 be cheaper to raise the temperature of whatever it is,  
5 whether it be water or whatever, to 60 degrees if that  
6 is all you need, and you don't need to expand a lot of  
7 energy, time and resources to raise the temperature of  
8 that water to an enormous amount of heat if all you  
9 need is 60 degrees?

10 MR. BURKE: A. If you are going to use  
11 the same energy source in both cases, clearly if you  
12 only need to raise it 60 degrees, instead of a 1,000  
13 degrees, it's probably going to be better to do the 60  
14 degrees. The issue clearly is not that because clearly  
15 you want to use a different energy form and then the  
16 comparison breaks down.

17 Q. Well, I think you have made reference  
18 to the point I was coming up to making. Therefore,  
19 does it not make sense to use low temperature sources  
20 to meet low temperature requirements? And you know  
21 where I'm going with that. A low temperature source is  
22 obviously a solar source.

23 A. Yes, and the only problem is that it  
24 doesn't turn out to be cheap to do that.

25 MR. SHALABY: A. I also thought the sun

1 was pretty hot.

2 MR. GRENVILLE-WOOD: I have a feeling if  
3 you keep on with those comments we might send you  
4 there, Mr. Shalaby, to see if you can stand the heat.

5 Q. I guess the question is -- for  
6 example, you have examined the possibility as I  
7 understand it of working on the basis of producing -- I  
8 think there is a project you have for cooling using the  
9 water in Lake Ontario. And is it not possible to use  
10 solar and waste heat alternatives to provide heating  
11 and have rather than a district cooling plant, have a  
12 district heating plant? Have you made any analysis of  
13 that kind of thing?

14 MS. FRASER: A. There is a district  
15 heating plant in the City of Toronto now.

16 Q. Yes, and this is the point I am  
17 coming at. What sources does the district heating  
18 plant use for its heat?

19 A. Gas as I understand it. It's not  
20 Ontario Hydro's district heating system. It's ...

21 Q. So, you don't have one of your own?  
22 You don't have any studies that you have done or any  
23 examinations within Ontario Hydro that analyze the  
24 issue of low temperature sources for low temperature  
25 needs?



1 MR. WILSON: A. Just on the broad  
2 theoretic basis because I think we're at that level in  
3 this discussion.

4 Q. Yes.

5 A. Basically, ground source heat pumps,  
6 and air source heat pumps extract low grade heat and  
7 upgrade it with a heat pump the small distance that you  
8 need to take it to meet people's needs. It is almost  
9 the flip side of heat pumps used or heat exchangers  
10 used with the deep lake cooling proposal that has been  
11 discussed.

12 Q. The point of course that you need to  
13 bear in mind is that even in that process a large  
14 proportion of electricity is required to make that  
15 operate?

16 A. Heat pumps are pretty efficient in  
17 terms of the yield, the useful energy that is delivered  
18 per unit of electricity that is input to the process.  
19 I think the ratios are two to one or four to one.

20 Q. I presume from what I am hearing you  
21 say, what I have heard Ms. Fraser say, that there is no  
22 analysis done within Hydro as to the impact of solar in  
23 those kinds of situations to replace electricity, for  
24 example.

25 MS. FRASER: A. What impact of solar we

1 do have is when a particular project through our  
2 savings by design program -- it is actually a Brampton  
3 Hydro building and they are putting solar collectors on  
4 the roof to assist in the efficiency of the ground  
5 source heat pump. We have looked at that as a total  
6 package, and that has been approved for incentive. We  
7 would certainly entertain any other projects that would  
8 do that.

9 Q. Do you have any analytical reports of  
10 the success and operation of that particular ...

11 A. It's under construction now

12 Q. Before ordering the construction did  
13 you have any feasibility studies or any reports done on  
14 it's potential?

15 A. Yes. The customer did , yes.

16 Q. And is that available to you that  
17 you could produce to us?

18 A. No. It would be a confidential  
19 document between the customer and the consulting  
20 engineer. We do not release documents of other ...

21 Q. Could you identify who the customer  
22 is?

23 A. I indicated it was Brampton Hydro.

24 Q. Sorry. I didn't here you.

25 You are saying that it is confidential to

1 Brampton Hydro, and you are not in a position to  
2 produce those feasibility studies?

3 A. Correct.

4 Q. You presumably have made a decision  
5 to make this program eligible for incentive programs  
6 under your aegis, is that correct?

7 A. Yes. Over the base case that was  
8 examined it saves about 450 kilowatts together with the  
9 ground source heat pump and the other energy efficiency  
10 heat source options that have been pursued for that  
11 building.

12 Q. Now, before Hydro made its decision  
13 to approve it for an incentive, did not Hydro have to  
14 evaluate this program?

15 A. What we do is we finance the  
16 feasibility under our feasibility assistance plan. We  
17 then do a load shaper analysis in conjunction with the  
18 consulting engineer.

19 Q. I'm sorry? What kind of analysis?

20 A. A load shaper analysis.

21 Q. A load shaper analysis.

22 A. That is a building energy simulation  
23 program. It simulates the differences between the base  
24 case and the energy efficiency options--

25 Q. Yes.

1                   A.    --and that then becomes part of the  
2    feasibility study, and it is stamped by the consulting  
3    engineer doing the feasibility study, and based on our  
4    access to that information is what we base our -- we  
5    don't base our -- yes, we base our incentive on that.  
6    What the information that is provided to Ontario Hydro  
7    is specific load shape data of the savings, and that  
8    data then is used to determine whether or not it passes  
9    the total customer cost test.

10                  Q.    See if I understand you.  You are  
11    telling me that you have made a decision within Ontario  
12    Hydro based on information provided to you by a  
13    customer and their consultant engineers--

14                  A.    Correct.

15                  Q.    --correct?  And that decision is not  
16    available -- I mean that analysis upon which you have  
17    based a decision to make something eligible for a  
18    grant, or at least a program support, whatever that is,  
19    and that information is not available to the general  
20    public, and not available to this hearing?

21                  A.    Correct.  We have over almost 900  
22    savings by design projects.  What we do with them quite  
23    often is develop case studies with the agreement of the  
24    consulting engineer and the customer, and publish those  
25    in a document called Power Saver Options, which comes

1 out regularly, and we showcase ground source heat pumps  
2 and we provide that information. It's very valuable.  
3 But from the point of view of the commercial  
4 operation -- now whether Brampton Hydro will make this  
5 available, I don't know. But from the point of view of  
6 operation of our program, this is commercially  
7 sensitive data with respect to decisions.

8 The overall cost benefit information in  
9 terms of the approval of program is in Volume 2 of the  
10 program concept reference document which is in evidence  
11 in this hearing. So, the overall management decision  
12 is based, is documented in the decision analysis  
13 summary there. It is not specific to the technology  
14 per se.

15 Q. Well, I must confess I haven't read  
16 that particular document so I can't tell if it would  
17 satisfy me in trying to find out what criteria and so  
18 on.

19 Obviously, there is a solar component in  
20 here that has met the total customer cost test, I  
21 presume?

22 A. The total bundle of the incremental  
23 cost of the total efficiency upgrade met the total  
24 customer cost test. I don't know if the solar  
25 component individually would have passed or not, and



1       that's the beauty of the total -- the beauty of savings  
2       by design is that we can pull packages of things  
3       together, and as long as the total project passes, that  
4       we can then include some technologies that may not in  
5       and of themselves pass the total customer cost test  
6       because we don't want people to design buildings with  
7       just one energy efficiency technology included in it.  
8       We want them to improve the total system of the  
9       building, so --

10               Q. I am a little taken aback, I suppose.  
11       You mean, if you say the beauty of savings by design is  
12       it can use all these different technologies, and if  
13       beauty is in the eye of the beholder, and we are not  
14       allowed to behold this, what is the use of it to other  
15       people? I don't understand why it is such a secret  
16       document.

17               A. The particular documents that we're  
18       talking about are essentially the consultant's report  
19       to the customer.

20               Q. And the customer is Brampton Hydro?

21               A. Correct.

22               Q. Is that not a utility?

23               A. Yes. They exist in their own right.

24               Q. Oh, yes, I understand that. Well,  
25       can I obtain an undertaking from you with respect to

1 this? That you will inquire of Brampton Hydro --  
2 did I hear a muttering from my left here? -- that  
3 you will inquire of Brampton Hydro and ascertain  
4 whether they will permit you to release the documents  
5 that Hydro use to arriving at, to arrive at its  
6 decision to include this program within its savings by  
7 design incentive plan?

8 A. What there is, I believe, is an  
9 article in a building and construction journal with  
10 respect to the general issues of it.

11 Q. Well, you know what I'm interested  
12 in. I am interested in the economic feasibility  
13 analysis so that we can satisfy Mr. Burke about things  
14 like total customer cost ...

15 A. Okay, the economic feasibility was  
16 not specific to solar energy. It was specific to the  
17 total building system.

18 Q. Sure, but do you not agree that solar  
19 energy must -- in order to have the global you must  
20 have had the particular parts analyzed?

21 [4:16 p.m.]

22 A. Okay. The economic feasibility was  
23 not specific to solar energy. It was specific to the  
24 total building system.

25 Q. Sure, but do you not agree that solar

1 energy must -- in order to have the global, you must  
2 have had the particular parts analyzed?

3 A. No. That is the whole point of doing  
4 a building energy simulation.

5 The reference I was talking about is a  
6 magazine called "Building Owner and Property Manager,  
7 Buildings in the Environment, the Dawning of a New  
8 Era", and it is Brampton Hydro, building to incorporate  
9 environmental components. And so it is a whole article  
10 on that kind of thing.

11 Q. Well, I would appreciate --

12 A. You could contact and get that  
13 information.

14 Q. I appreciate your producing that  
15 article for me. That would be very helpful.

16 Maybe we could at least have that put  
17 forward as an undertaking - number, I guess, 267.24.

18 THE CHAIRMAN: Is it part of the PCRD or  
19 is that --

20 MS. FRASER: No. It is a magazine that  
21 was June, 1991. It is just a clipping. We keep  
22 clippings of such things.

23 THE CHAIRMAN: Perhaps the simplest thing  
24 is to just have copies made and put it on as the next  
25 exhibit. If that would be satisfactory.

1 MR. CAMPBELL: That would be fine, Mr.  
2 Chairman.

3 If we could get the next exhibit number.

4 MR. GRENVILLE-WOOD: 316, I think.

5 MR. B. CAMPBELL: 316.

6 THE REGISTRAR: 316.

7 ---EXHIBIT NO. 316: Magazine entitled "Building Owner  
8 and Property Manager, Buildings in the  
9 Environment, the Dawning of a New Era",  
by Brampton Hydro.

10 MR. GRENVILLE-WOOD: Q. So I mean, that  
11 deals with the magazine article. It doesn't address  
12 the issue yet and I suppose Mr. Campbell will give you  
13 your instructions to whether you say yea or nay.

14 Would you be prepared to undertake to  
15 contact Brampton Hydro and see if they would release to  
16 you and, therefore, to us the consulting studies and  
17 other documents that were produced to you earlier that  
18 fed your decision to include them in the program?

19 MR. B. CAMPBELL: Mr. Chairman, with  
20 respect to this particular project, this is not  
21 something that was a decision whether or not to include  
22 them in the program. As has been explained, the  
23 program encompasses all sorts of energy efficiency  
24 measures.

25 And, as I understand it, the analysis

1       that my friend is requesting does not isolate any solar  
2       component and do any kind of test against the solar  
3       component per se. It looks at the package of measures.

4               THE CHAIRMAN: How does anyone know that  
5       without having seen it?

6               MR. B. CAMPBELL: Well, I believe it has  
7       been testified to for one thing, Mr. Chairman.

8               THE CHAIRMAN: But I understood that they  
9       didn't have it because it was confidential, but that  
10      this was a whole building design. So that under the  
11      general principles of the total customer costs, there  
12      may be pluses or minuses within that framework.

13              MR. B. CAMPBELL: But the test, as I  
14      understand Ms. Fraser's testimony already on this  
15      matter, was the entire package was applied to the  
16      entire package of measures, not to the individual  
17      components.

18              THE CHAIRMAN: Perhaps I could find out.  
19              How do you apply the total customer cost  
20      test if you don't know what it is that it costs the  
21      municipality to put in this?

22              MS. FRASER: The total costs of the  
23      project is included in terms of the incremental costs  
24      for the energy efficiency upgrades.

25              What we have the consulting engineer do,



1 and it is an output of the load shaper program, is give  
2 us a picture of the load shape of the savings between  
3 the base case and the energy efficiency upgrade.

4 That load shape is then overlaid in terms  
5 of the system savings and in terms of doing the total  
6 customer cost test. That was basically the load  
7 profile that you are measuring in the total customer  
8 cost test process.

9 THE CHAIRMAN: What is your understanding  
10 of what Mr. Grenville-Wood is asking for?

11 MS. FRASER: My understanding is he  
12 expects to see a cost benefit analysis of the solar  
13 component, and that is not done individually component  
14 by component.

15 MR. GRENVILLE-WOOD: With respect, Mr.  
16 Chairman, that isn't what I am asking for. I am asking  
17 for the consultant's report. I will judge then after  
18 having studied it whether it gives me good or bad news.  
19 Maybe it is terrible news for me.

20 But I mean, surely, you have alluded to  
21 this project. You have approved it for the incentive  
22 program. There is a solar component in it. I would  
23 like to see what it is.

24 THE CHAIRMAN: But they approve it  
25 because it passes the TCC and it fits in with their

1 general overall program, so they don't really care too  
2 much what the consultant said; is that correct?

3 MS. FRASER: Well, what the consultant  
4 does is puts a stamp on the load shaper analysis which  
5 gives this profile the load savings. And we take that  
6 and then put that into our computer system.

7 And what you sort of got is computer  
8 systems and computer systems. And yes, we get to see  
9 the feasibility study and appreciate what is in it.  
10 Our field staff work quite often with the consulting  
11 engineers on that.

12 But from the point of view of the  
13 program, the way we have operated the program is that  
14 those are commercial documents between the consulting  
15 engineer and his client.

16 THE CHAIRMAN: You see them, but you  
17 don't keep them; is that what you are saying?

18 MS. FRASER: Yes.

19 MR. B. CAMPBELL: Mr. Chairman, as I  
20 understand the request that is before you, it is that  
21 Ontario Hydro undertake to contact Brampton Hydro to  
22 determine whether Brampton Hydro will release it. This  
23 is obviously a pretty straightforward thing and we  
24 certainly could do that.

25 I will tell you that I am reluctant.

1 These are always slippery slopes and turn into  
2 sometimes floods of these requests.

3 But (1) we will write a letter to  
4 Brampton Hydro and request and determine whether they  
5 are prepared to waive whatever interest they may or may  
6 not wish to claim in that document.

7 MS. FRASER: I would just say that the  
8 rationale for this approach in terms of our program is  
9 because developers, consulting engineers are bringing  
10 proprietary information to us, and they might stop  
11 doing that and might not want to get involved in energy  
12 efficiency opportunities if they knew that that was  
13 then going to be turned around and broadcast what edge  
14 that they might be gaining to their competitors.

15 Now, when we do get a good project, we  
16 turn it into a case study. It is a very, very valuable  
17 kind of thing that we do. My guess is that Brampton  
18 Hydro is prouder than punch of this project and would  
19 love to, you know, show you all of it, to them.

20 Well, my consideration from the point of  
21 view of the ethics and integrity of the program is that  
22 that shouldn't be something that we provide because I  
23 consider that commercially sensitive information that  
24 we are dealing with and I don't think it is our job to  
25 broadcast it.

1 MR. B. CAMPBELL: You will not on this  
2 occasion or any other occasion, Mr. Chairman, find us  
3 volunteering to produce information of that type. As I  
4 understand it, that is not what we are being asked here  
5 at the moment anyway.

6 MS. FRASER: If that hadn't been in the  
7 article in the public domain, I would not have  
8 mentioned the customer name. I would have mentioned a  
9 project. I would not have mentioned and given credit  
10 to one of our municipal utilities to boot.

11 MR. GRENVILLE-WOOD: Well, the request is  
12 there, Mr. Chairman. I understand Mr. Campbell has  
13 acceded to it, that he will at the very least write a  
14 letter and he is very nervous about slippery slopes,  
15 but let's give him a seat belt or something.

16 MR. B. CAMPBELL: Mr. Chairman, with  
17 respect, there is an operating relationship here that  
18 customer service representatives in Ontario Hydro and  
19 the execution of its demand management programs has to  
20 have the trust both of its customer community, the  
21 consulting community, all of that.

22 THE CHAIRMAN: Firstly, I understand. I  
23 understand that perfectly. I just want to know what  
24 you are saying you will do.

25 Are you saying you will write a letter or

1       you won't write a letter? This is the reverse of the  
2       usual situation. You are usually restraining them and  
3       now they are restraining you.

4                   MR. B. CAMPBELL: And I am trying to  
5       learn as quickly as I expect them to learn, so ...

6                   THE CHAIRMAN: I think the point is well  
7       taken. I don't think that Hydro should be forced to go  
8       to Brampton and ask for this information.

9                   If the party wants it, they can go to  
10      Brampton. If Brampton is prepared to give it to them,  
11      they can, but I am not going to compel Hydro to go and  
12      get that information.

13                   We are not going to compel Hydro. I have  
14      just done a poll. (laughter)

15                   MR. GRENVILLE-WOOD: Perhaps we should  
16      subpoena Brampton Hydro then.

17                   I am amazed, Mr. Chairman and Members of  
18      the Panel, that such documentation would be -- it is  
19      clearly in the public interest to know and clearly in  
20      the public interest to work with these kinds of things,  
21      that it is not available.

22                   THE CHAIRMAN: Well, proprietary  
23      consideration; I think that has been mentioned. I  
24      think we can go onto something else now.

25                   MR. GRENVILLE-WOOD: I am prepared to do



1 that, Mr. Chairman.

2 Q. Now, just to finish on that one point  
3 then. Is that the only project that you can attest to  
4 or that you are aware of which talks about these energy  
5 efficiencies being obtained for low temperature needs  
6 and so on?

7 MS. FRASER: A. We have many projects  
8 which are ground source heat pumps under our savings by  
9 design program. We have a special category and a  
10 prescriptive incentives for those. And sometimes I  
11 think those projects might also not just include space  
12 conditioning but may also include heat pump water  
13 heaters.

14 We also certainly encourage people to do  
15 heat recovery whenever possible. I don't know whether  
16 you would classify that in the same way or not.

17 Q. I will move on to another area. In  
18 Volume 51 at pages 9379 onwards, in response to  
19 questions from Mr. Poch, you were discussing the  
20 barriers to the use of energy cutting measures and also  
21 to various incentive programs.

22 A. Yes. Which page is that?

23 Q. Sorry, you don't need necessarily to  
24 look at it. It is just a general comment that I think  
25 Mr. Burke was talking in exchanging with Mr. Poch. It

1 is Volume 51, page 9379 onwards. It goes on for  
2 several pages.

3 You were discussing essentially high  
4 capital cost problems as a barrier to using energy  
5 cutting measures. And I think, Mr. Burke, you agreed  
6 that access to low cost capital can be a serious  
7 barrier in that exchange.

8 I understood from this exchange that  
9 Hydro would be willing to pay the first costs of energy  
10 efficient measures where access to low cost capital is  
11 a serious barrier for end users.

12 Does this fact allow Hydro to examine  
13 other options that would otherwise meet consumer  
14 resistance because of high initial costs?

15 MR. BURKE: A. It turns out that it is  
16 largely Ms. Fraser's testimony that you were referring  
17 to.

18 Q. Sorry, I thought it was you, but  
19 maybe I missed an allusion to a name in the text.

20 A. Perhaps you could repeat the  
21 question.

22 Q. Surely.

23 MS. FRASER: A. I am sorry.

24 Q. The discussion was about the cost of  
25 capital and whether the high cost of capital was a

1 serious barrier. I drew from that exchange the idea at  
2 any rate that Hydro would be willing to pay the first  
3 costs of energy efficiency measures where the barrier  
4 was identified as being the lack of access to low cost  
5 capital.

6 And that fact, if it is correct, would  
7 allow Hydro to examine other options that would be  
8 meeting customer resistance because of this high  
9 capital cost.

10 And if this is, in fact, correct, would  
11 not solar energy be an example? Especially if it could  
12 be shown that the capital cost is a barrier, would not  
13 solar energy be one of those that would be eligible for  
14 that kind of incentive program?

15 A. If it passed the total customer cost  
16 test, yes.

17 Q. Okay. So, my understanding then is  
18 that if the capital cost is the barrier, the incentive  
19 program could be applied if the whole package would  
20 meet the total customer cost?

21 A. Well, we don't design a program just  
22 looking at one particular factor. We design programs  
23 looking at a whole range of factors.

24 I think the example I used was the  
25 non-profit housing program where we are paying 100 per

1 cent of the incremental, and in this case the  
2 incremental cost is the project cost, as well as  
3 arranging for the contractors, and so on.

4 [4:30 p.m.]

5 Certainly access to capital is a  
6 difficulty for non-profit housing.

7 But we looked at a whole range of things  
8 with respect to -- we knew what kind of participation  
9 we are getting from that segment in our regular  
10 programs, and we knew what was making some differences.  
11 So, we can't design a program just based on one factor;  
12 we look at a whole range of things, but that would be  
13 something that we would certainly consider.

14 Q. If, for example, the question of this  
15 total customer cost analysis were based on different  
16 criteria -- let me just take a step back.

17 If, for example, it could be shown that a  
18 technology such as solar water heating, for example,  
19 meet the TCC test, but that there was still an economic  
20 disincentive for the customer to purchase the equipment  
21 or to lease it, would then it fit in to your criteria  
22 to receive an incentive to offset the high capital  
23 cost?

24 A. Yes. That's exactly why we develop  
25 programs, is to offset in one case the financial

1 barriers that may be there in terms of the payback is  
2 much longer than the customer is willing to tolerate  
3 and we use our incentives to bring that payback down,  
4 so that's a very important consideration in our program  
5 design.

6 Q. Sorry, were you indicating you wanted  
7 to say something.

8 MR. WILSON: A. I am just nodding in  
9 agreement.

10 Q. Sorry. Presumably then, if I can  
11 understand you correctly, what Mr. Burke said earlier,  
12 this June 1991 examination of solar water heaters was  
13 the one that presumably excluded the solar water  
14 heaters from your incentive program because that  
15 analysis didn't produce the kind of figures that would  
16 include it as meeting the TCC test.

17 MS. FRASER: A. That's correct. And in  
18 that analysis the example of solar water heaters failed  
19 the TCC test.

20 Q. Could I ask one question with respect  
21 to that undertaking. How long would it take you to  
22 produce that June 1991 report?

23 MR. SHALABY: A. If you want it separate  
24 from the other reports, we can do that by tomorrow. If  
25 you want it together with the other reports, it will



1 take a while.

2 Q. No, I would be quite willing to  
3 separate them into two parts if you could produce that  
4 for me tomorrow, that will be great?

5 A. You wouldn't forego the other part?

6 Q. No. There is no horse trading here,  
7 Mr. Shalaby. (laughter)

8 A. No deal, all right.

9 Q. Thank you. I would appreciate being  
10 able to see it as soon as possible.

11 Now, is it my understanding that Hydro  
12 now supports the conversion of water and building  
13 heating from electricity to natural gas? Is that  
14 something you are actively involved in and interested  
15 in?

16 MR. WILSON: A. Yes. The cost analysis  
17 satisfies the total customer cost test.

18 Q. And do you acknowledge, however, that  
19 at least -- Mr. Burke was adding a rider. Do you want  
20 to....

21 A. He just made the point that we won't  
22 stop paying incentives until it's legal to do so.

23 Q. You do acknowledge, however, that at  
24 least one half of the electrically-heated homes that  
25 are now in Ontario do not have access to natural gas,

1 or something in that order of about 50 per cent?

2 A. Yes, that's our assessment.

3 Q. What then is the option for those  
4 homes? What do you forecast for them in terms of  
5 options?

6 MR. MacLELLAN: A. For them we plan to  
7 go to as many as possible with our water heater tune-up  
8 program, which saves substantial demand and energy.

9 Just to give you an idea of how we  
10 approach these things, we don't pick a technology like  
11 solar and say, what can we do with. We pick an end use  
12 like water heating and say, how can we make it more  
13 efficient. To that end we did a quick comparison  
14 between a water heater tune-up and a solar water heater  
15 installation. And while the solar water heater  
16 installation gives us maybe three times as much in  
17 terms of demand savings, it's at a cost that's about 35  
18 times higher than a water heater tune-up, plus a water  
19 heater tune-up has wonderful customer satisfaction  
20 measures on it. It's something that we can install  
21 virtually everywhere and can afford to do so.

22 Q. You say you have done some analyses  
23 in order to arrive at these figures?

24 A. Actually, I said we did a quick  
25 comparison.

1 Q. Is there a big difference between a  
2 quick comparison and an analysis?

3 A. A quick comparison is a pencil on the  
4 front of a piece of paper.

5 Q. That's interesting. Do you have that  
6 piece of paper with the quick analysis in pencil?

7 A. Yes, it's right here.

8 Q. You have it there?

9 You did it in the last five minutes.

10 A. No, actually I believe I did it  
11 yesterday.

12 Q. I am glad Mr. Campbell had you  
13 preparing for today's testimony.

14 What are the sources you used for  
15 arriving at this information?

16 A. The sources for the water heater  
17 tune-up data are all of our pilot programs and our  
18 approximately 100,000 tune-ups that we have done  
19 already.

20 The source of the data for the solar  
21 water heater performance is the report Mr. Shalaby was  
22 referring to.

23 Q. The 1991 report?

24 A. Yes.

25 Q. So could you produce to us the solar

1 water heater tune-up data that you have just referred  
2 to?

3 A. The comparison I referred to?

4 Q. First of all, you have to have  
5 something with which to compare to 1991.

6 A. The water heater tune-up data.

7 Q. Yes, that's what I said.

8 A. I thought you said solar tune-up.

9 Q. Sorry. I have got this sort of  
10 fixation on solar. It comes out even when I don't want  
11 it to.

12 A. Yes, I believe we could.

13 Q. Thank you.

14 Could we put that down as an undertaking?

15 A. It's in the PCRD already.

16 Q. Is it?

17 A. Yes.

18 Q. So you are using just that  
19 information --

20 A. That information is based on our  
21 pilot tests and tests of installations in the field.  
22 Those are the numbers we are crediting each tune-up  
23 for, yes.

24 Q. Just so I have it absolutely clear,  
25 the comparison you just did on the back of your sheet

1 of paper there, is using information from the PCRD and  
2 information contained in Mr. Shalaby's famous report?

3 A. Correct.

4 Q. Nothing else?

5 A. No.

6 Q. All right. So, I will find the one  
7 source, Mr. Shalaby will give me the other source, all  
8 I need is your scratchings on a piece of paper.

9 A. Happy to give it to you.

10 Q. Thank you.

11 Do you want to have give that an  
12 undertaking number?

13 THE REGISTRAR: 267.24.

14 MR. B. CAMPBELL: Is it okay if we get it  
15 typed up so it will photocopy?

16 MR. GRENVILLE-WOOD: Yes.

17 MS. MACLELLAN: You can't read my writing  
18 either.

19 MR. GRENVILLE-WOOD: I won't even ask for  
20 comparison to the original to see that Mr. Campbell  
21 doesn't fudge the figures. I trust him that far. So  
22 that is 267.24.

23 ---UNDERTAKING NO. 267.24: Ontario Hydro undertakes to  
24 provide a comparison between a water  
heater tune-up and a solar water heater  
25 installation.



1 MR. GRENVILLE-WOOD: Q. Now, again  
2 talking about this, going back to the first part my  
3 question a moment ago about conversion to natural gas.  
4 I think you were indicating - I am not sure now who was  
5 giving the testimony - again at Volume 47, pages 8541  
6 and confirmed later on in Volume 51. You don't need to  
7 look at this, I don't think. You prefer to look at it?  
8 Go right ahead.

9 MR. B. CAMPBELL: They have been told  
10 never to accept those assurances, always to look at the  
11 transcript. So, if you can give the volume and page  
12 number.

13 MR. GRENVILLE-WOOD: I just gave them. I  
14 will repeat them for your benefit, Mr. Campbell.

15 Volume 47, page 8541, and Volume 51,  
16 pages 9289 onwards.

17 Q. In that testimony, I think you were  
18 discussing the question of conversion to natural gas  
19 heating, and there was a statement that this conversion  
20 has attached to it some risks, mainly in the area of  
21 price.

22 Now, the question is: Would you agree  
23 that there are other risks attached to natural gas  
24 conversion?

25 I will give you one example. Would you

1 not agree that natural gas produces greenhouse gases?

2 MR. SHALABY: A. Yes, it's easy to agree  
3 to.

4 MR. BURKE: A. It doesn't produce  
5 greenhouse gases, it is a greenhouse gas.

6 Q. Thank you. The end result of the  
7 process produces greenhouse gases?

8 A. Yes.

9 Q. You prefer it that way. I am very  
10 glad you are being so absolutely, technically correct.

11 Now, is it not a policy of Ontario Hydro  
12 that to, wherever possible, reduce greenhouse gas  
13 emissions. Did we not hear that somewhere being said  
14 in Panel 1 and elsewhere.

15 MR. SHALABY: A. The Demand/Supply Plan  
16 shows how different plans can be put together to reduce  
17 the emissions from Ontario Hydro plants to 80 per cent  
18 of the 1988 level. This is the CO(2) emissions. There  
19 are many greenhouse gases.

20 Q. I'm sorry, it's what?

21 A. CO(2) emissions. We are planning to  
22 see them at 80 per cent of the 1988 levels by the year  
23 2005.

24 Q. But those are direct Ontario Hydro  
25 emissions.

1 A. That's correct.

2 Q. Now, if you were encouraging people  
3 to switch to a CO(2) emitting process, are you not  
4 robbing Peter to pay Paul, to put it in some sort of  
5 weird way, or paying Paul by robbing Peter?

6 A. Those emissions get emitted outside  
7 of that data sheet, that's what you are saying.

8 Q. Yes.

9 A. Yes.

10 Q. So by encouraging conversion to a  
11 greenhouse gas-producing process, are you not adding to  
12 the problem?

13 A. You have got to compare what the  
14 greenhouse emissions would have been without the  
15 conversion, and so on. But there is definitely that  
16 idea of some emissions that are Ontario Hydro, some  
17 emissions are customer-based or not Ontario Hydro's  
18 emissions.

19 Q. Have you taken that into account at  
20 all in your analysis?

21 A. Your question is whether we have  
22 taken that into account?

23 Q. Yes, that is the question.

24 A. We haven't taken that into the  
25 development of the Demand/Supply Plan. Although we are

1 aware that emissions by others contribute to the  
2 environmental loading, just as much as emissions by  
3 ourselves.

4 Q. So, is there any element of the total  
5 customer cost that is being taken into account in the  
6 fact that some technologies do not, in fact, produce  
7 such things as greenhouse gases and other technologies  
8 do. Is there any element of that taken into account by  
9 Ontario Hydro?

10 A. Only to the extent that avoided cost  
11 of electricity includes in it not greenhouse gas  
12 abatement but acid gas control costs, but not  
13 greenhouse control costs, because we don't know what  
14 those are.

15 Q. I'm sorry, you don't know what?

16 A. The greenhouse control is not a  
17 practical method in our plants anyway.

18 Q. I didn't catch that. Is that?

19 A. Controlling CO(2) is not a practical  
20 option. We don't know what it costs to control CO(2).  
21 But to reduce CO(2) emissions from our coal burning  
22 plant is not an option that we are looking at.

23 The answer was, only to the extent that  
24 acid gas emissions are reduced. These are greenhouse  
25 gases as well, but not CO(2) emissions. So, there is

1 allowance in the total customer cost for reducing SO(2)  
2 and NOx, but not CO(2).

3 Q. Is that because CO(2) is not a  
4 by-product of your activities, or what is the reason  
5 behind that?

6 A. No, the reason is what I was  
7 explaining, is that we do not know of practical  
8 technology to control CO(2) from our coal-burning  
9 plants.

10 Q. What practical technology?

11 A. To control or reduce CO(2).

12 Q. Okay. But what I am trying to get at  
13 is, you are encouraging a program that contributes to  
14 part of the greenhouse gas problem, from what I  
15 understand, you are also contributing to the problem  
16 through the coal-fired plants, and you have done no  
17 analysis on the impact on greenhouse gases whatsoever.  
18 Is that what I am understanding you to say?

19 A. What we have done is formulate a plan  
20 that would reduce CO(2) emissions to 80 per cent of  
21 what they were in 1988.

22 Q. Through the coal-fired process?

23 A. Coal and gas and oil. All the fuels  
24 that we use that produce CO(2).

25 Q. Now, are you making any analysis of



1 the impact on CO(2) emissions in the Province of  
2 Ontario of your gas conversion program?  
3 [4:47 p.m.]

4 A. I don't think that kind of analysis  
5 has been done - not to my knowledge, no.

6 MR. B. CAMPBELL: We have over a thousand  
7 interrogatories for this panel. I believe there is an  
8 interrogatory that looks at something like space  
9 heating, electricity versus gas, and gives some  
10 emission numbers that are associated with, I believe,  
11 high efficiency gas in the home versus electrical  
12 emissions.

13 I am just trying to see if I can find the  
14 number, but I can't possibly be critical of my panel  
15 for not remembering all of these things. But I happen  
16 to recall this one and I will try and find the number,  
17 if that may be of help to my friend.

18 MR. SHALABY: They will not be of the  
19 fuel switching program, I am sure, Mr. Campbell.

20 MR. B. CAMPBELL: My memory is right but  
21 it comes at it somewhat backwards, but it would  
22 certainly give the basic information. The question we  
23 were asked -- it is Interrogatory 4.24.30,  
24 supplementary.

25 MR. GRENVILLE-WOOD: Could you give that

1 again?

2 MR. B. CAMPBELL: 4.24.30, the  
3 supplementary answer.

4 The question is:

5 To provide an estimate for 2008 of the  
6 total annual energy saving resulting from  
7 conversion of all Ontario households with  
8 conventional natural gas space heating  
9 systems and central air-conditioning or  
10 wall unit air conditioners to ground  
11 source heat pumps.

12 So, it is sort of going the other  
13 direction, but obviously it would flow either way.

14 Please estimate the change in CO(2)  
15 emissions such as substitution would make  
16 and state what per cent of the  
17 additional electricity required is  
18 assumed to come from nuclear generation.

19 So, I think the information in that  
20 interrogatory would give an indication of the CO(2)  
21 emission numbers.

22 Having referred to it, I suppose we  
23 should have a number for this now.

24 THE CHAIRMAN: It is in the 261 series.

25 THE REGISTRAR: 261.65.

1 ---EXHIBIT NO. 261.65: Interrogatory No. 4.24.30.

2 MR. GRENVILLE-WOOD: Q. I would like to  
3 look at that document before asking any further  
4 questions about that particular area perhaps, but the  
5 question that comes to my mind about this whole issue  
6 of conversion to natural gas, is the comparison that  
7 comes to mind immediately, the conversion to natural  
8 gas for water heating, for space heating when again  
9 there are other technologies available that have no  
10 impact either on CO(2) emissions or on other  
11 environmentally maligned technologies.

12 And the question that comes to me from  
13 all of that is: Why from your perspective is that  
14 fact, environmentally benign technologies -- and you  
15 know what I am referring to. I don't have to use that  
16 word, the 'S' word -- why they aren't being used, why  
17 they aren't being applied, why they aren't being  
18 examined? Well, you know, is there no analysis made of  
19 the general impact of environmentally negative  
20 activities?

21 MR. SHALABY: A. Well, there is  
22 evaluation of those options, as that 1991 report will  
23 look at one particular technology, solar water heating.

24 The way to recognize those environmental  
25 benefits is if we add a 10 per cent premium in

1 evaluating solar options or any other renewal option.

2 That is our way of recognizing the discussion that you  
3 are going through here.

4 Q. Well, are you satisfied that a 10 per  
5 cent premium in order to try and bring it within the  
6 total customer cost is an adequate premium given, first  
7 of all, the general public policy decision to reduce  
8 CO(2) emissions and other greenhouse gases and the fact  
9 that you have undertaken as an organization to reduce  
10 your contribution to that? The fact of this conversion  
11 is only transferring that contribution to somebody  
12 else.

13 Now, all those things taken into account,  
14 does it not mean to go to you?

15 MR. B. CAMPBELL: Well, Mr. Chairman,  
16 hasn't this matter been dealt with in Panel 3 when I  
17 thought a great deal of time was spent on just this  
18 very issue?

19 And I am very reluctant and I do submit  
20 to you that when an issue has been thoroughly explored,  
21 we can't keep returning to it at each and every panel.

22 THE CHAIRMAN: Well, this is in the  
23 context of fuel switching and that is the difference  
24 between this and Panel 3.

25 MR. B. CAMPBELL: In my submission, Mr.

1 Chairman, the question that was asked, be it in the  
2 context of fuel switching or not, had to do with  
3 whether the premium that my friend Mr. Shalaby spoke of  
4 was an adequate premium and that certainly--

5 THE CHAIRMAN: That was a Panel 3  
6 question, yes, that is right.

7 MR. B. CAMPBELL: --explored in depth in  
8 Panel 3.

9 THE CHAIRMAN: That was a Panel 3 issue.

10 MR. GRENVILLE-WOOD: No, I understand  
11 that, Mr. Chairman, but the context is in light of the  
12 fuel switching which is transferring, what you might  
13 call, our CO(2) allocation - if you want to use that  
14 word - from Hydro's responsibility to somebody else,  
15 the customer, in fact, because they are now switching  
16 to natural gas which is a greenhouse gas.

17 Q. Is any account taken of that in  
18 establishing whether or not technologies that do not  
19 have that impact meet the TCC? We know that those  
20 technologies reduce demand.

21 MR. SHALABY: A. Well, if we are  
22 switching to gas, we do not give a premium; if we are  
23 switching to solar, we do give a premium. That is the  
24 extent to which we recognize the environmental benefits  
25 of non-emitting technology.



1 Q. And my understanding is that the  
2 effect then of fuel switching to a greenhouse gas  
3 technology has not been taken into account, but there  
4 is this paper that I should look at more carefully  
5 first.

6 MR. B. CAMPBELL: That is not what the  
7 witness said. He said when it was done, switching to  
8 gas, there is no premium; switching to something like  
9 solar, there is a premium. So that there is an  
10 advantage afforded to solar for that. I thought his  
11 answer was quite explicit on that and that is not what  
12 my friend has said.

13 MR. GRENVILLE-WOOD: Well, with respect,  
14 what I was saying was that my understanding from  
15 earlier answers was that the 10 per cent premium did  
16 not take into account the fact that the CO(2)  
17 responsibility is being moved out from Hydro's  
18 responsibility.

19 MR. SHALABY: I think Mr. Wilson and  
20 others on the panel indicated that there is a  
21 government policy dimension to this switching from one  
22 fuel to another. That is certainly an implication of  
23 the government policy direction.

24 MR. GRENVILLE-WOOD: Q. But without  
25 regard to the fact that the switching is to a

1 greenhouse gas, right?

2 MR. SHALABY: A. Well, that policy of  
3 directing a switch from one fuel to another has  
4 implications and that is one of the implications.

5 Q. Yes. All right.

6 MR. WILSON: A. I think it would be  
7 helpful to expand on just one point: Electric space  
8 heating is the example we could discuss and we are  
9 considering substitution of natural gas and high  
10 efficiency furnace as a substitute for electric heat.

11 As Mr. Shalaby talked about in one of his  
12 favourite illustrations, he has demonstrated that coal,  
13 oil and, to some extent, natural gas would be burned by  
14 Ontario Hydro to produce the electricity to heat the  
15 houses with electricity.

16 When that occurs, you use an awful lot  
17 more fuel for every kilowatthour or unit of energy  
18 delivered to the house than if you burn the natural gas  
19 in a high-efficiency furnace in the house. It is  
20 something like a three to one ratio.

21 So, CO(2) emissions would be reduced to a  
22 third, I presume, roughly a third of the level that  
23 would be incurred if Ontario Hydro were to produce the  
24 electricity to heat the house.

25 So, certainly in movement from electric

1 space heating to natural gas space heating would be a  
2 step in the right direction in terms of CO(2) emission  
3 reduction no matter who was producing the CO(2).

4 Q. But that is assuming the ...

5 A. It doesn't eliminate the CO(2), but  
6 it cuts it way back.

7 Q. No, no, I understand that. Which  
8 Hydro-produced electricity are you comparing the CO(2)  
9 emission from natural gas to?

10 A. If we burn coal.

11 Q. So, you are using coal as the  
12 example?

13 A. Or natural gas or --

14 Q. Yes, but you compare natural gas to  
15 coal?

16 A. Well, we are comparing natural gas at  
17 an Ontario Hydro station and produced more CO(2) for  
18 every home heated than if the gas was directed to the  
19 homes and used there. That is the only point I was  
20 making.

21 Q. I just want to make sure that I  
22 understand what you are saying. The reduction in CO(2)  
23 emissions comes from the fact that the electricity  
24 produced by Hydro - the source you are using for that  
25 electricity is coal-fired plant. And if you reduce the

1 demand made on that coal-fired plant and transfer that  
2 demand to natural gas, then there is a reduction of --  
3 that the effect is one third of what the previous would  
4 be. That is a very inelegant way of putting it.

5 A. But that is about right, yes.

6 Q. But it is only to a coal-fired  
7 source?

8 A. It could be coal, it could be natural  
9 gas or it could be oil. I am not differentiating which  
10 fossil fuel we would consume.

11 MR. GRENVILLE-WOOD: Mr. Chairman, I will  
12 be going into another area now. Perhaps it will be an  
13 appropriate time --

14 THE CHAIRMAN: All right. We will  
15 adjourn until tomorrow morning at 10:00.

16 THE REGISTRAR: This hearing will adjourn  
17 until 10:00 tomorrow morning.

18 ---Whereupon the hearing was adjourned at 4:59 p.m., to  
19 be reconvened on Thursday, the 26th day of  
September, 1991, at 10:00 a.m.

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